CFS-3300L

SERVICE MANUAL

AEP Model

SPECIFICATIONS

Tape Transport Mechanism Type	MF-3000-75

Radio section

Frequency range	FM 87.6—107 MHz MW 530—1,605 kHz (566—187 m) LW 150—255 kHz SW 5.95—18.00 MHz
Antennas	FM/SW: Telescopic antenna MW/LW: Built-in ferrite bar antenna

Tape recorder section and general

Recording system	4-track 2-channel stereo
Fast winding time	Approx. 1 min. 30 sec. with Sony cassette C-60
Frequency response	80—8,000 Hz
Speakers	Two-way: Woofer 10 cm (4 inches) dia. x 2 Tweeter 2 cm (13/16 inches) dia. x 2
Power output	2 W + 2 W (at 10% harmonic distortion) in dc operation
Inputs	Two external microphone input jacks (minijack) sensitivity 1.23 mV (—56 dB)
Outputs	Headphones jack (stereo minijack) for 32 ohms impedance headphones
Power requirements	220 V ac, 50 Hz 9 V dc, six IEC designation R20 batteries (size D)
Power consumption	14 W in ac operation
Battery life	Approx. 17 hours of continuous recording with the built-in radio using Sony SUM-1 (NS) New Super batteries
Dimensions	Approx. 481 x 179 x 190 mm (w/h/d) (19 x 7 1/8 x 7 5/8 inches) incl. projecting parts and controls, not incl. handle
Weight	Approx. 4.1 kg (9 lb 1/2 oz) incl. batteries

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

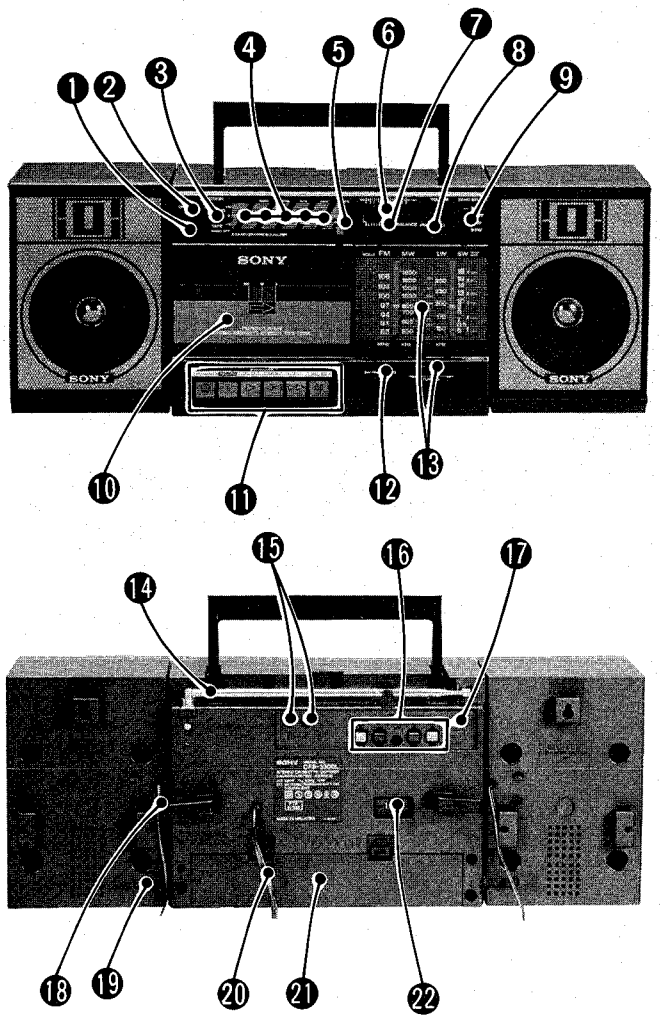
MICROFILM

FM/MW/LW/SW STEREO CASSETTE-CORDER

SONY®

TC

LOCATION AND FUNCTION OF CONTROLS



❶ 🎧 **(headphones)jack**
Stereo minijack for headphones listening. When connecting the headphones, the speakers are automatically disconnected.

❷ **OPR/BATT (operation/battery) indicator**
Lights up to show operation.
The indicator also shows the battery condition.

❸ **FUNCTION selector**
TAPE/RADIO OFF: For playing back the tape, or for recording from the external microphones.
Be sure to set the FUNCTION selector to TAPE/RADIO OFF when the set is not in use. (This position is **power off** for the radio when the tape operation mode select buttons are in the neutral position.)
RADIO: For listening to or recording radio program.

❹ **GRAPHIC EQUALIZER controls**
Slide downwards or upwards to equalize the reproduced sound. When the equalizer is not used, set the controls to 0 (center position).

Frequency coverage of each equalizer control
100Hz: Use this control to boost or cut the bass.
400Hz: Use this control to adjust the middle frequency range such as human voice and the middle frequencies of instrumental music.
1kHz: Use this control to provide more presence of vocals.
4kHz: Use this control to adjust the brightness of sound.
10kHz: This control effects general treble. Slide downwards to reduce high frequency noise, such as tape hiss.

❺ **REC MUTE (record muting) button**
Press this button to eliminate unwanted programs and provide a blank space during recording.

❻ **VOLUME control**

❼ **BALANCE coantrol**

❽ **FM STEREO indicator**
This indicator will light when an FM stereo program of sufficient signal strength is tuned in.

❾ **BAND SELECT switch**
Select the desired band.

❿ **Cassette holder**

⓫ **Tape operation mode select buttons**
- ■ **STOP/EJECT button:** Press to stop the tape and to release the locked button. Depress again to open the cassette holder.
- ● **RECORD button:** Depress to record. The ▶ button will be automatically depressed.
- ▶ **PLAY (playback) button**
- ◀◀ **REW (rewind) button**
- ▶▶ **FF (fast-forward) button**
- ❙❙ **PAUSE button:** Depress to momentarily stop the tape during recording or playback. To restart, press it again.

⓬ **SW FINE TUNING knob**
Turn to precisely tune in the SW frequency.

⓭ **TUNING knob and dial scale**
Turn the knob to select the frequency of the desired station.

⓮ **Telescopic antenna**
Used for FM and SW reception.

⓯ **EXT MIC (external microphone input) jacks**
Minijacks for recording with external microphones.

⓰ **SPEAKER terminals**
Connect the speaker system with the speaker cords.

⓱ **ISS (Interference Suppress Switch)/FM MODE selector**
ISS: While recording MW/LW program, if a beat (whistling noise) is heard, set the ISS selector to 1, 2 or 3, depending on which best reduces the noise.
FM MODE: Used for FM reception. Normally set the selector to STEREO. Set to MONO when it is hard to hear the broadcast due to noise.

⓲ **Speaker cord**

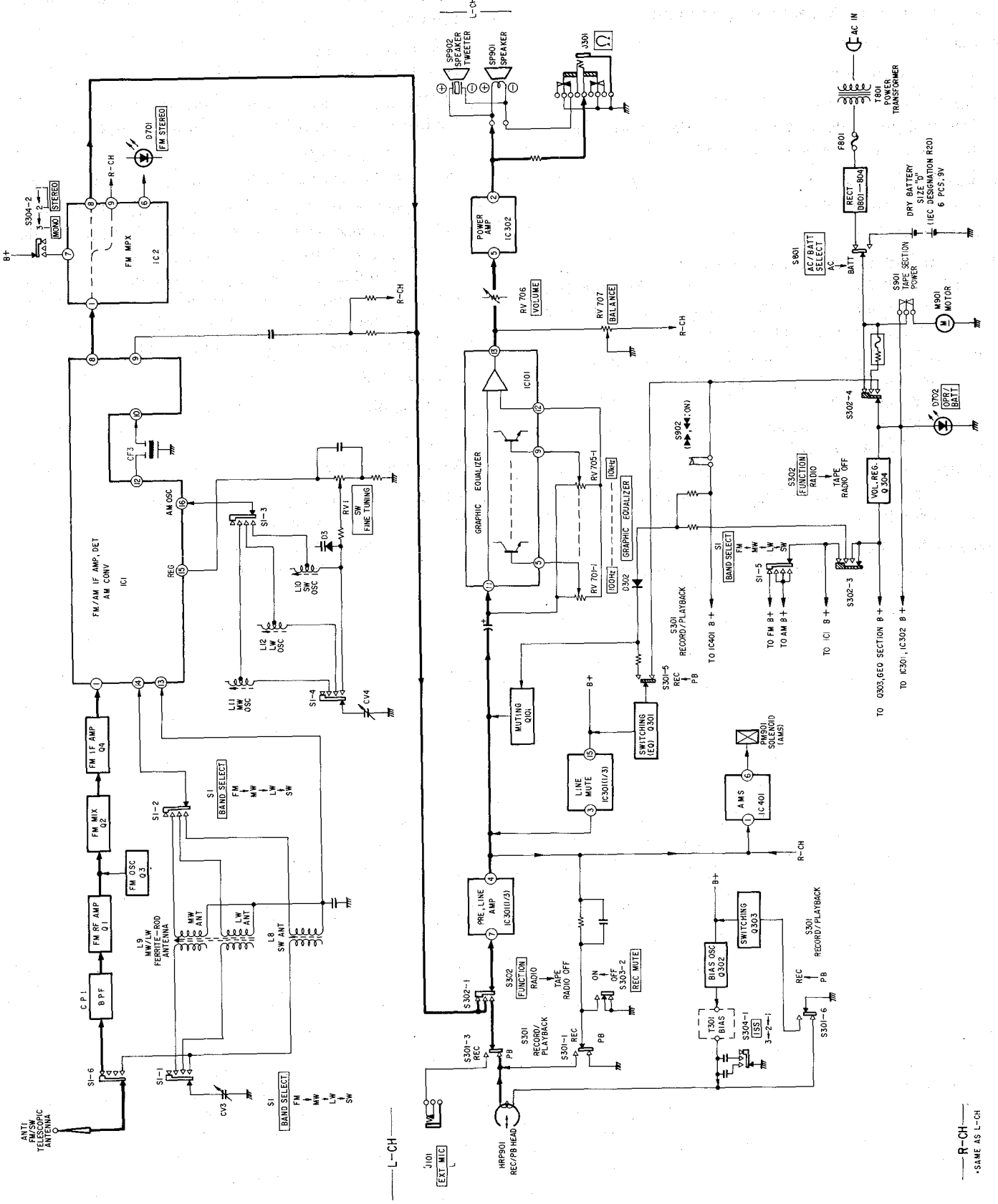
⓳ **LOCK knob**

⓴ **AC power cord**

㉑ **Battery compartment**

㉒ **AC/BATT (AC/Battery) SELECT switch**
Choose the power source as required:
AC: For ac operation
BATT: For battery operation

SECTION 1
BLOCK DIAGRAM

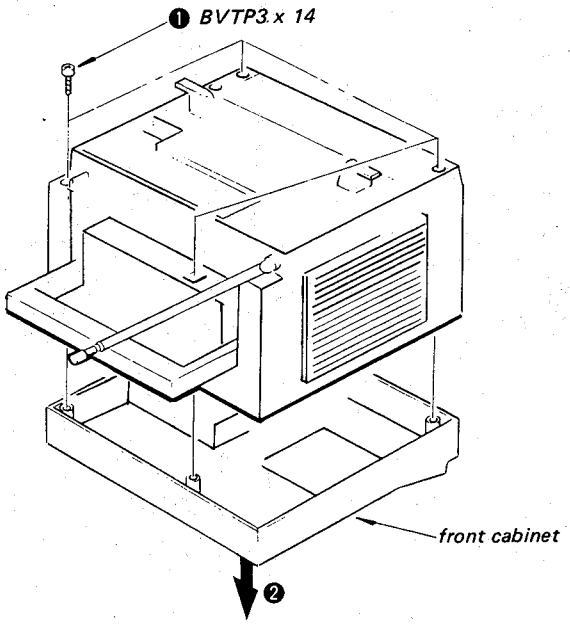


SECTION 2
DISASSEMBLY

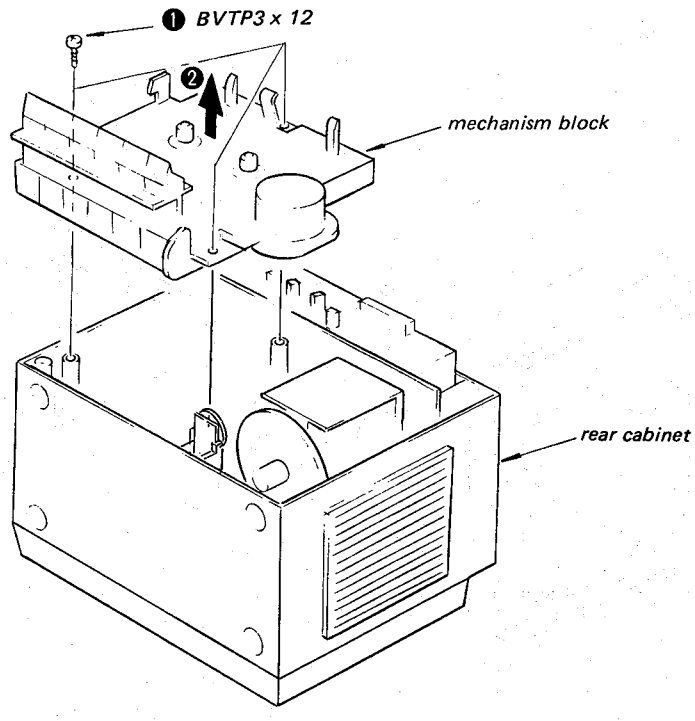
2-1. REMOVAL

Note: Follow the disassembly procedure in the numerical order given.

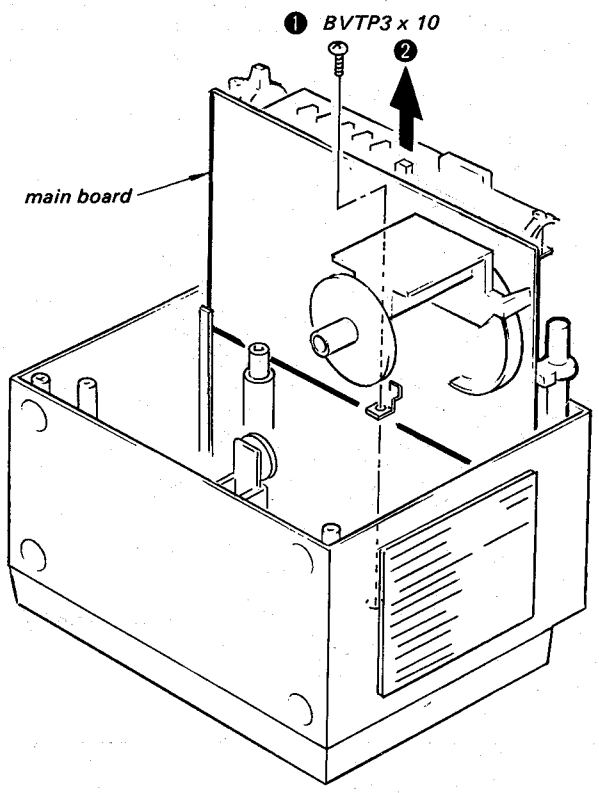
FRONT CABINET



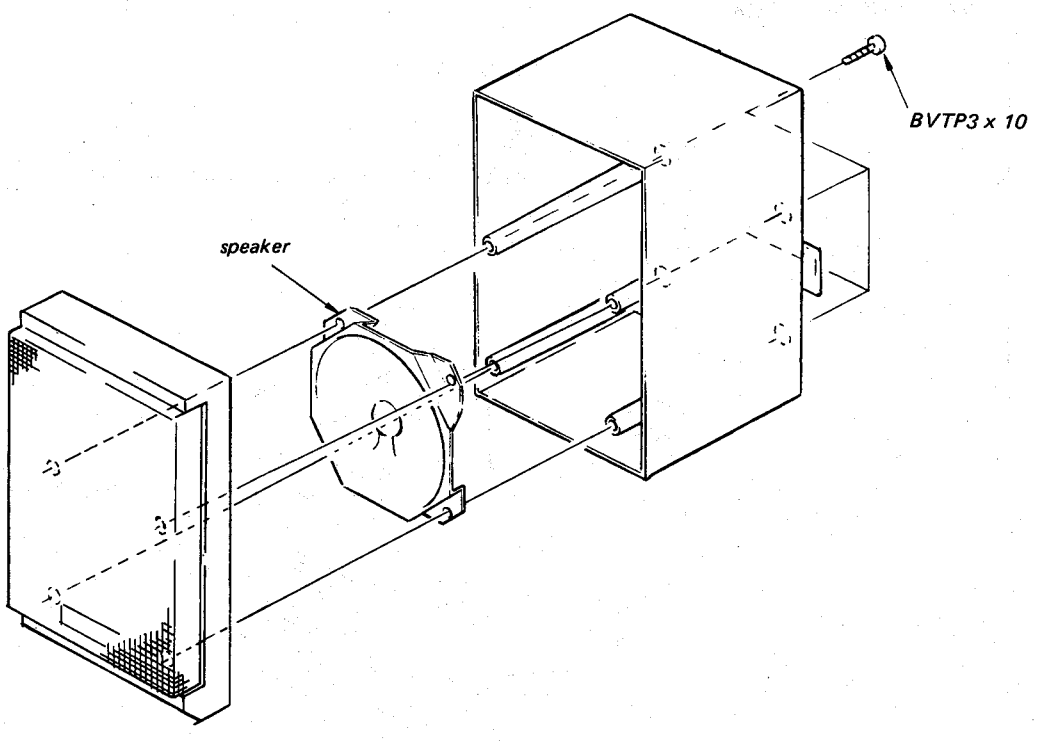
MECHANISM BLOCK



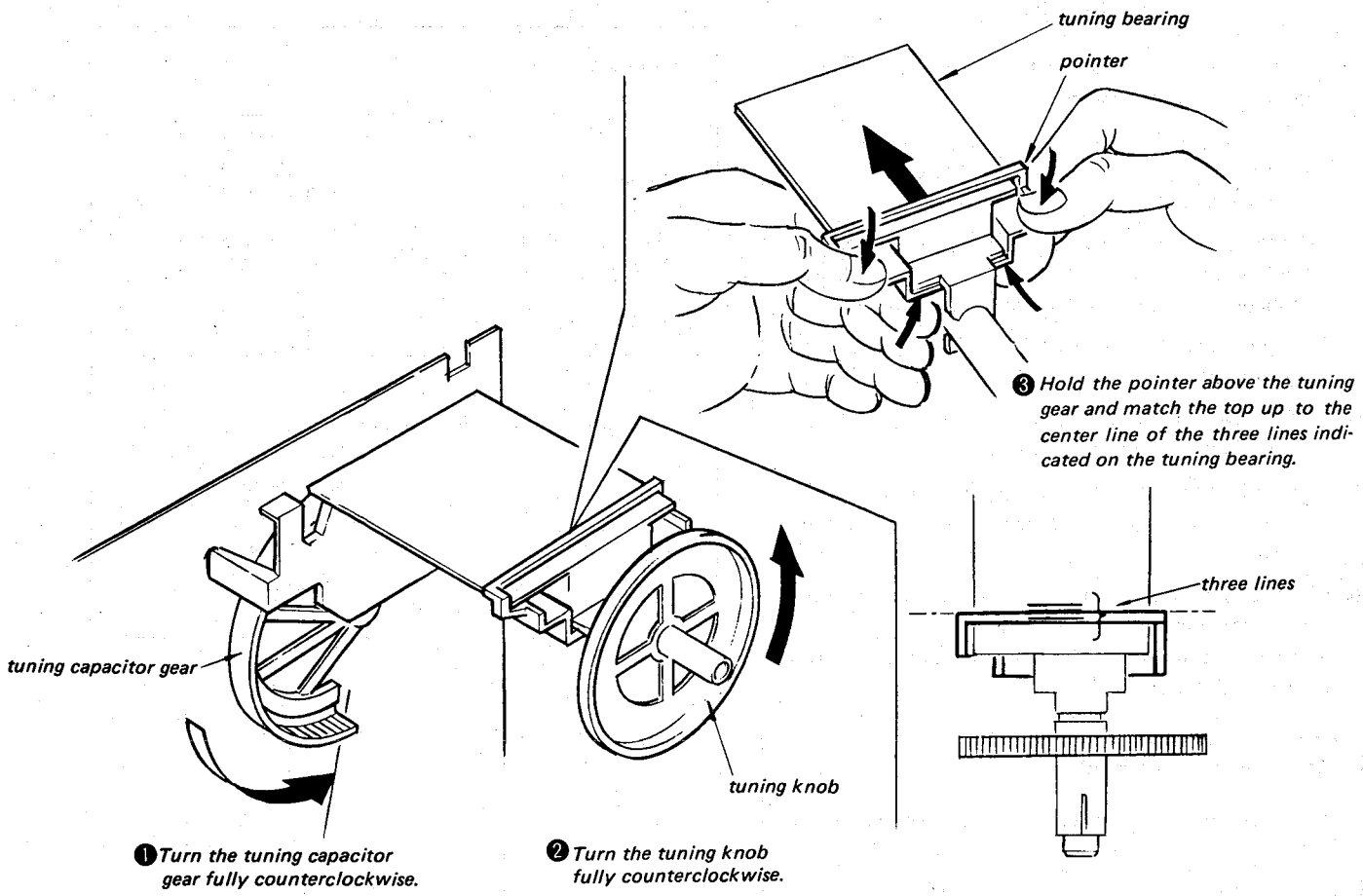
MAIN BOARD



SPEAKER



2-2. DIAL POINTER SETTING



❸ *Hold the pointer above the tuning gear and match the top up to the center line of the three lines indicated on the tuning bearing.*

❶ *Turn the tuning capacitor gear fully counterclockwise.*

❷ *Turn the tuning knob fully counterclockwise.*

SECTION 3
ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured-alcohol-moistened swab:

record/playback head	pinch roller
erase head	rubber belts
capstan	idlers

2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.
6. The adjustments should be performed in the order given in this service manual.
   The adjustments should be performed for both L-CH and R-CH.

Torque Measurement

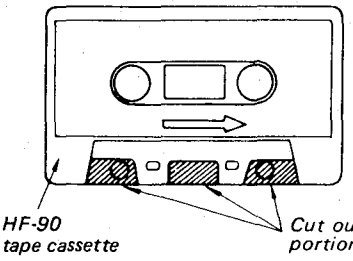
Torque	Torque meter	Meter reading
Forward	CQ-102C	22.5–55 g•cm (0.32–0.76 oz•inch)
Fast Forward, Rewind	CQ-201B	80–125 g•cm (1.1–1.73 oz•inch)
Back Tension	CQ-102C	2–5 g•cm (0.03–0.07 oz•inch)

Tape Pulling Force Measurement

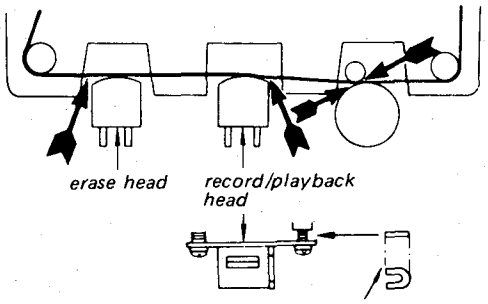
Meter	Meter reading
CQ-403	more than 170 g (more than 5.99 oz)

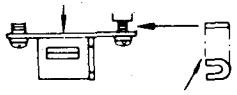
Head Height Adjustment

1. Prepare an adjustment cassette as shown below.

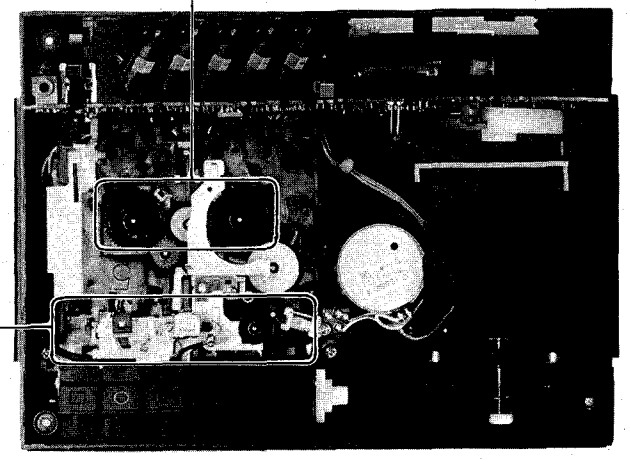


2. In playback mode and viewing from the front, adjust the head heights to eliminate tape curl and tape twist at the portions shown by arrow.





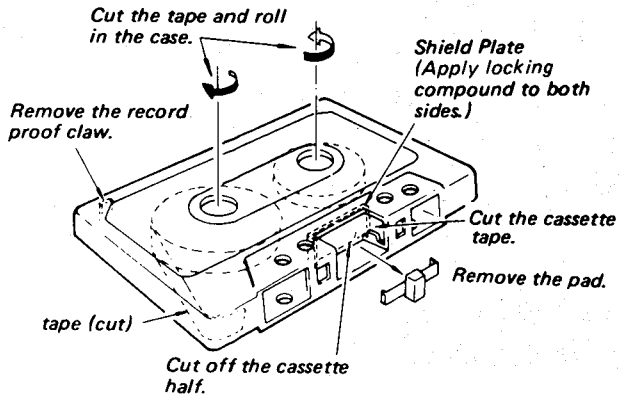
3-578-138-01 (t = 0.1)
3-578-138-11 (t = 0.2)
Shim, head height adjustment

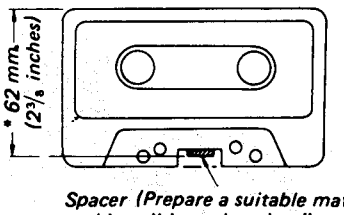


REC/PB Head Installation and Position Adjustment

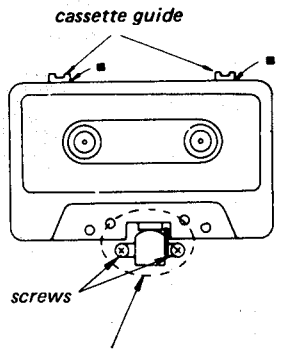
- This adjustment is necessary for the CUE detection of AMS.

1. Cassette Tape Preparation

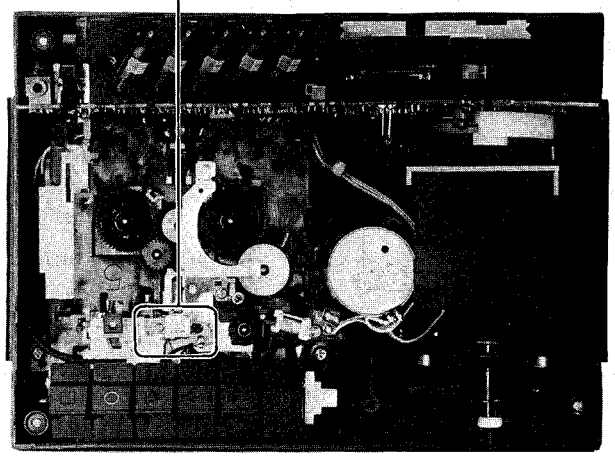

Cut the tape and roll in the case.
Shield Plate (Apply locking compound to both sides.)
Remove the record proof claw.
Cut the cassette tape.
Remove the pad.
tape (cut)
Cut off the cassette half.

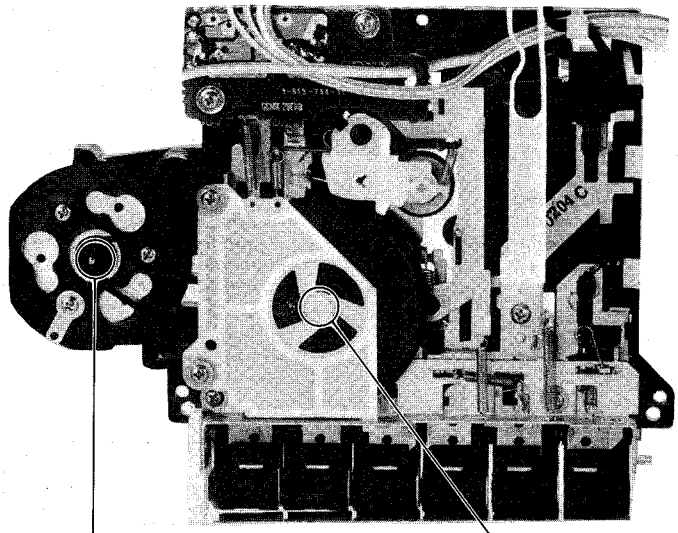


*Spacer (Prepare a suitable material and install it so that the distance marked by * is 62 mm (2³/₈ inches) and apply locking compound.)*



2. Set the cassette tape into the set and install the head with the screws so that the edge of the head is in contact with the spacer when pressing the FWD button and FF button or the FWD button and REW button at the same time. (At this time, the portion marked by ■ is in contact with the cassette). Then, adjust the REC/PB head Azimuth Adjustment and apply locking compound to an installation screw.



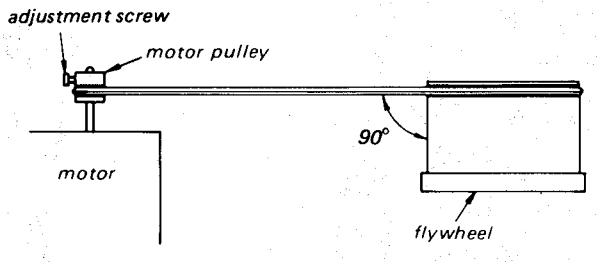


Motor Pulley Height Adjustment

Perform this adjustment, after replacing the motor pulley or the flywheel.

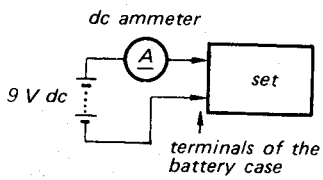
Procedure:

1. Keep the set horizontal.
2. Adjust the motor pulley height so that the drive belt is straight without a twist.



Flywheel Thrust Play Adjustment

– Playback Mode –



1. Turn the thrust screw counterclockwise until the screw tip leaves from the flywheel shaft.
2. Gradually turn the thrust screw clockwise to the position where the motor current suddenly increases.
3. Then, turn the thrust screw counterclockwise about ¼ turn from the position obtained in step 2.

3-2. ELECTRICAL ADJUSTMENTS

RECORDER SECTION

1. The adjustments should be performed in the order given in the Service Manual. (As a general rule, playback circuit adjustment should be completed before performing recording circuit adjustment.)
2. The adjustments should be performed for both L-CH and R-CH unless otherwise indicated.
3. Clean the following parts with a denatured-alcohol -moistened swab before the adjustments.
   record/playback head
   erase head
   pinch roller

- Switch location

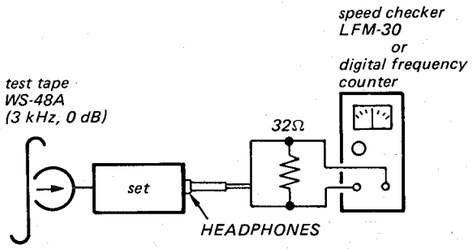
  GRAPHIC EQUALIZER . . .center click
  BALANCE. . . . . .center click
  VOLUME . . . . . .6 – 7

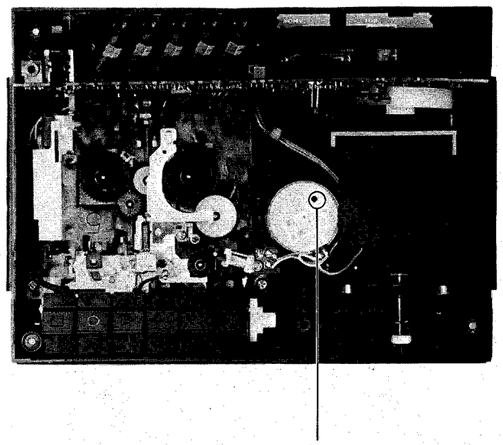
Tape Speed Adjustment

Setting:

FUNCTION switch: TAPE
Mode: playback

Procedure:





Specification:

Speed checker	Digital frequency counter
–2.5 to +1%	2,925 to 3,030Hz

Frequency difference between the beginning and the end of the tape should be within 1 % (30 Hz).

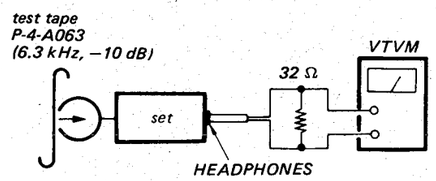
Record/Playback Head Azimuth Adjustment

Setting:

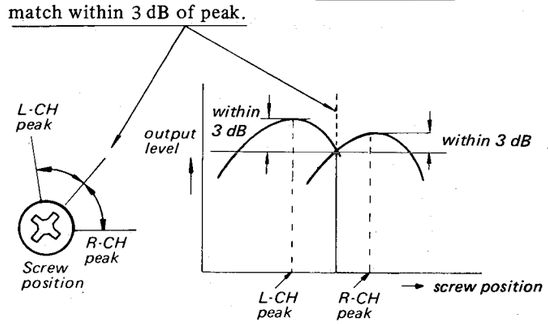
FUNCTION switch: TAPE

Procedure:

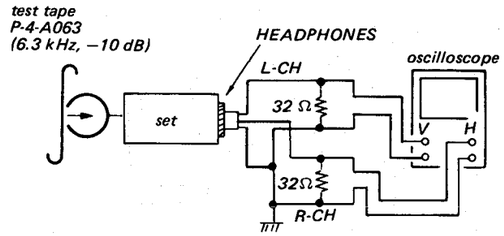
1. Mode: playback

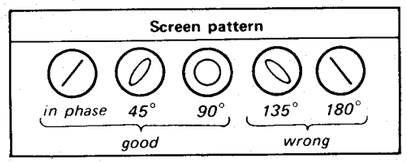


2. Turn the adjustment screw and check output peaks. If the peaks do not match for L-CH and R-CH, turn the adjustment screw so that outputs match within 3 dB of peak.



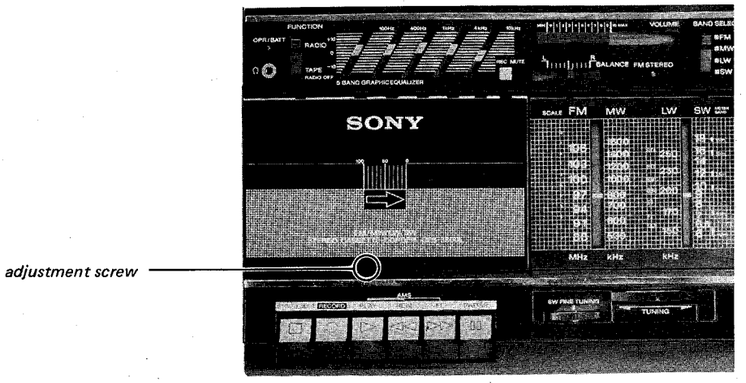
3. Phase Check
   Mode: playback





Note: Finish the screw adjustment with a turn in the clockwise direction.
After the adjustment, lock the adjustment screw.

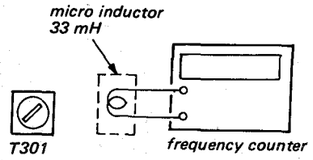
Adjustment Location:



Record Bias OSC Frequency Adjustment

Setting:

FUNCTION switch: TAPE
Mode: record (without signal)

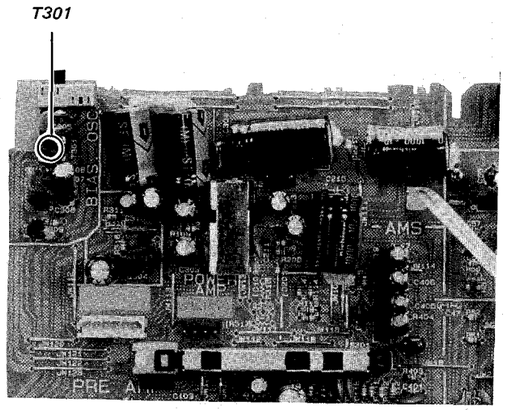


Procedure:

1. Bring the micro inductor connected to a frequency counter close to T301.
2. Adjust T301 for the specified value on the frequency counter.

Specification:

ISS 1 . . . . . 49 kHz ±3 kHz
ISS 2 . . . . . 46.5 kHz ±1 kHz
ISS 3 . . . . . 44.5 kHz ±1 kHz



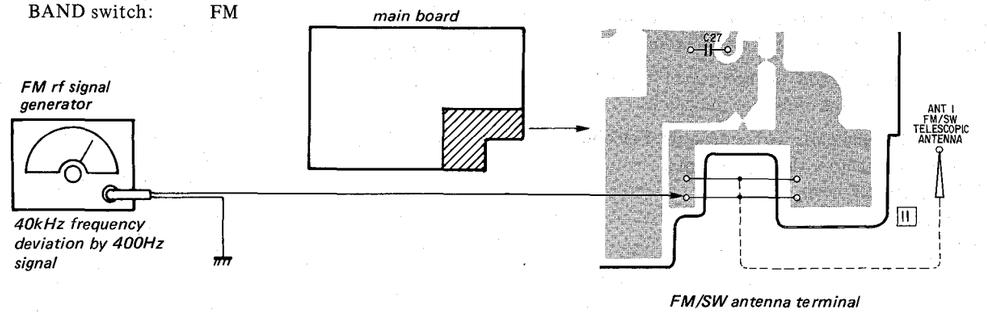
Adjustment Location: main board

RADIO SECTION

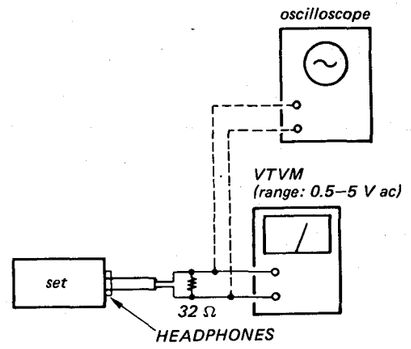
FM SECTION

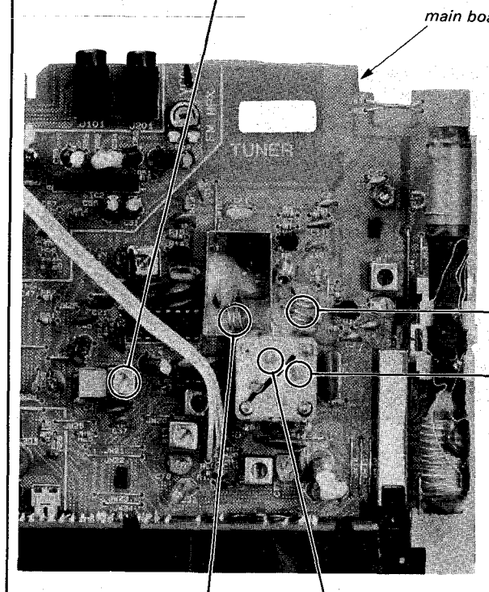
Setting:
FUNCTION switch: RADIO
BAND switch: FM

- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.



FM IF ALIGNMENT
Adjust L13 for maximum reading and minimum distortion on oscilloscope.
10.7MHz
L13





CT5	L2
108.0 ± 0.5MHz	87.35 ± 0.15MHz
Adjust for a maximum reading on VTVM.	
FM TRACKING ADJUSTMENT	

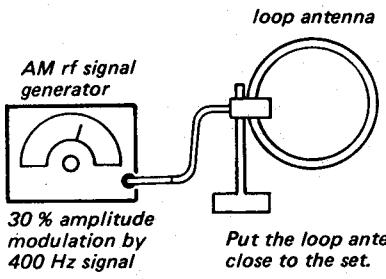
L4	CT2
87.35MHz	108MHz
Adjust for a maximum reading on VTVM.	
FM FREQUENCY COVERAGE ADJUSTMENT	

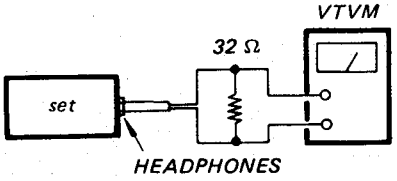
AM Section

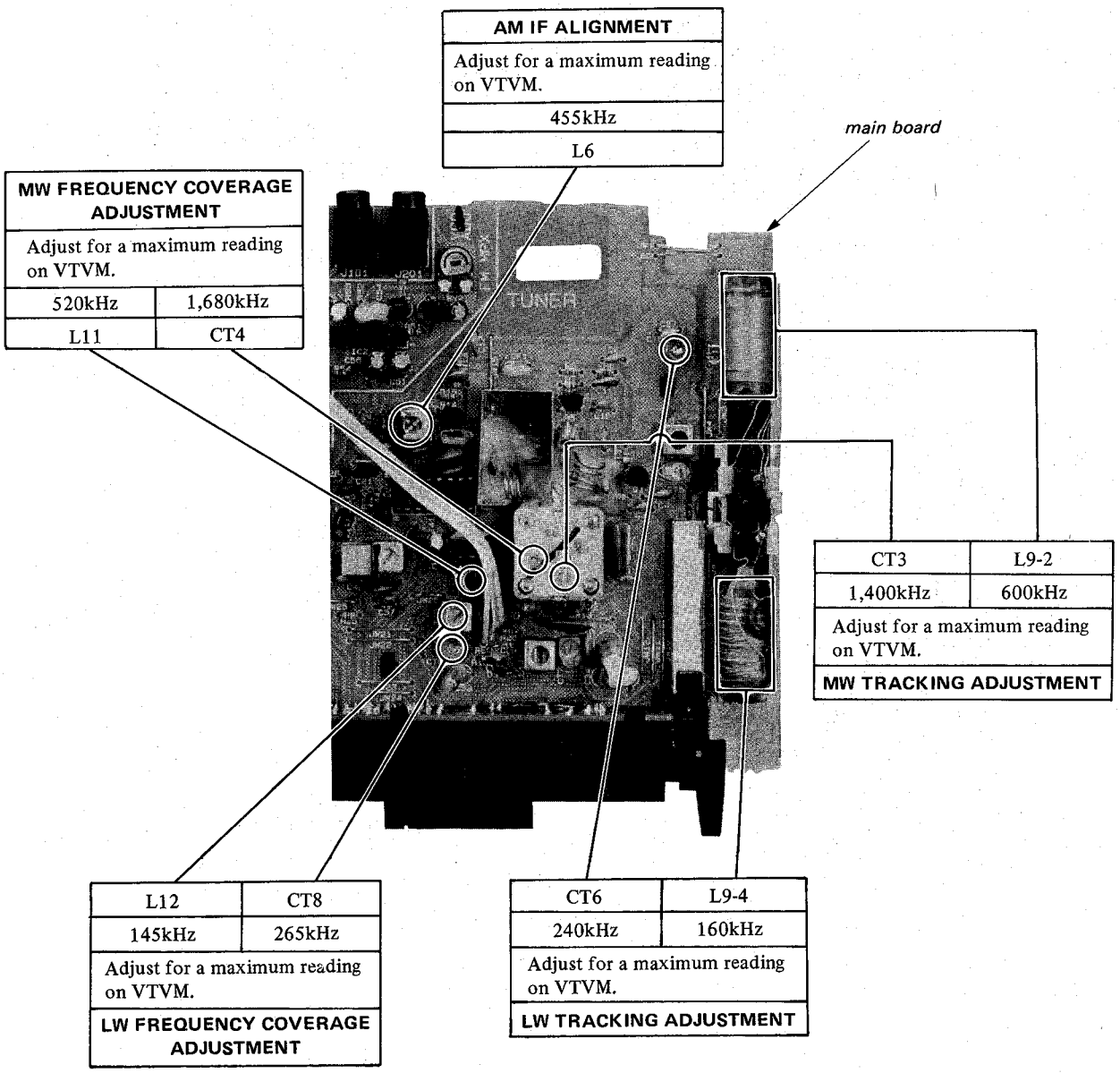
Setting:

FUNCTION switch: RADIO
BAND switch: MW/LW

- Repeat the procedures in each adjustment several times for a maximum VTVM reading. The frequency coverage and tracking adjustments should be completed with trimmer capacitor adjustment.



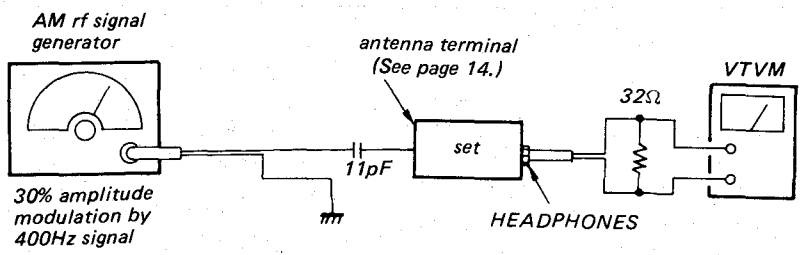


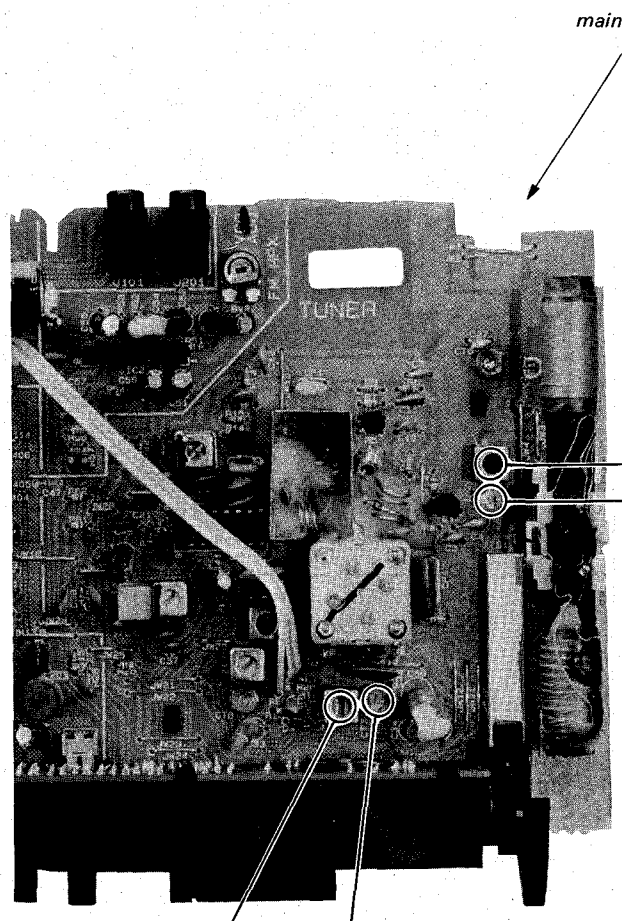


SW SECTION

Setting:

FUNCTION switch: RADIO
BAND switch: SW
SW FINE TUNING knob:





CT5	L8
18.4 ± 0.4MHz	5.8 ± 0.2MHz
Adjust for a maximum reading on VTVM.	
SW TRACKING ADJUSTMENT	

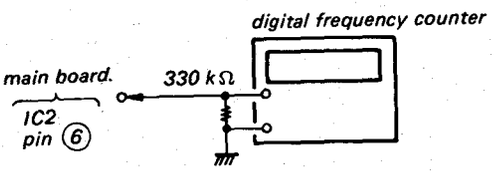
L10	CT7
5.8MHz	18.4MHz
Adjust for a maximum reading on VTVM.	
SW FREQUENCY COVERAGE ADJUSTMENT	

VCO Adjustment

BAND switch: FM

Procedure:

1. Connect the frequency counter to main board IC2 pin ⑥.



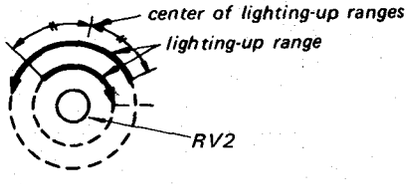
2. Adjust RV2 so that the frequency counter reading is within the specification.

Specification: 38 kHz ±0.3 kHz

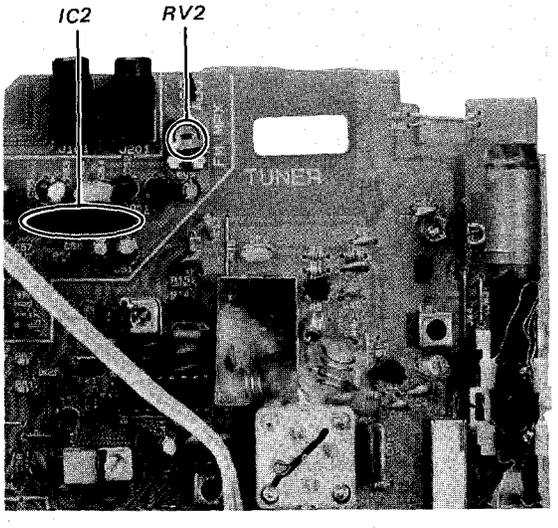
- **Simple Method**

Procedure:

1. Receive an FM stereo broadcasting signal.
2. Turn RV2 back and forth, and set at the center of where the stereo lamp lit up ranges overlap.

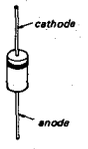


Adjustment Location: main board

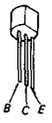


Semiconductor Lead Layouts

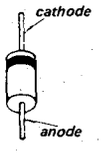
10E2



2SC710-13

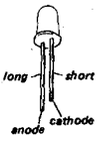


1S1555
1S2139C
RD6.2E

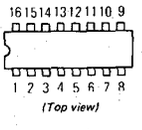


2SA733P
2SC945-P
2SC1674
2SC1815-GR
2SC2001

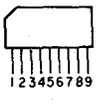
SLP135B-55



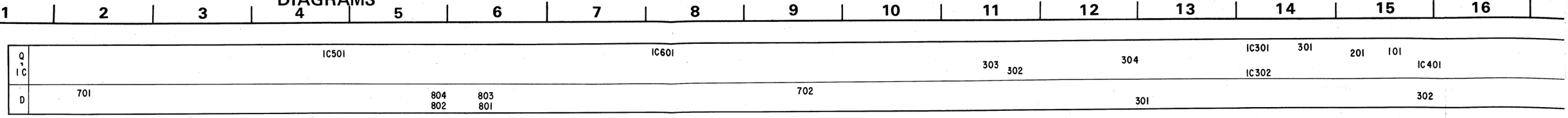
LA1260S
LA3600
TA7668AP

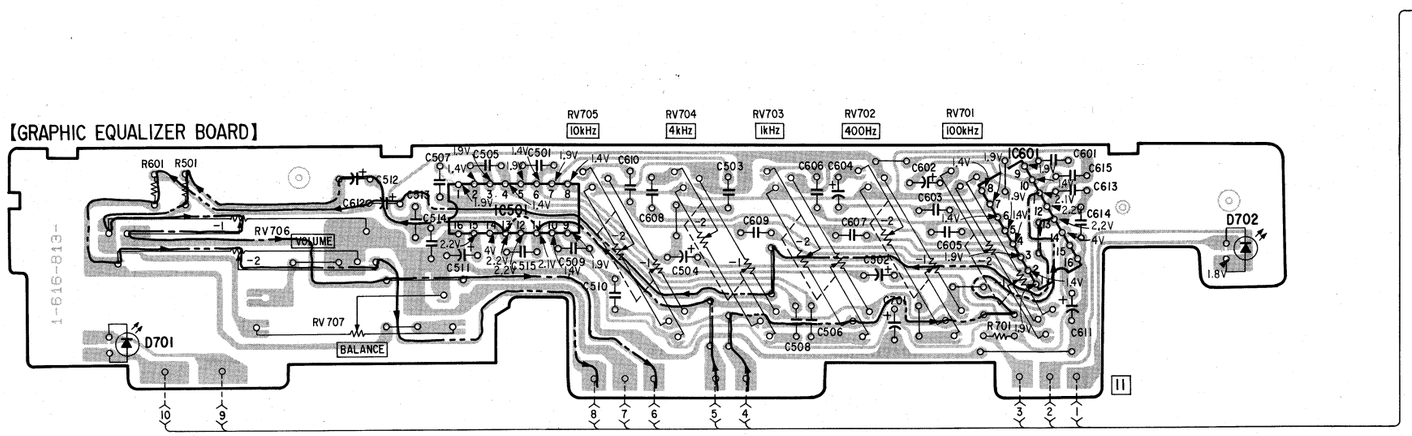


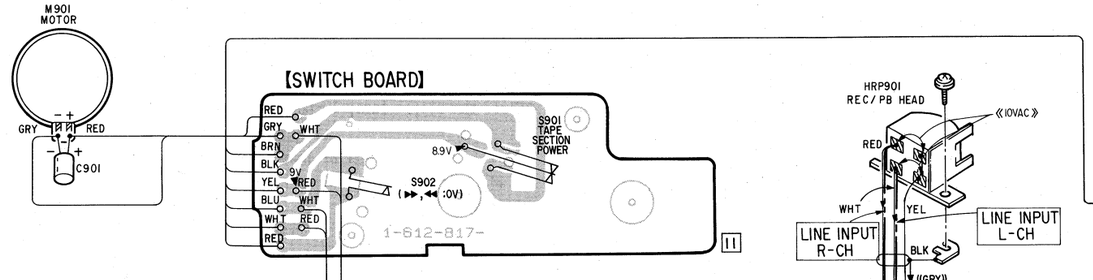
LA2010
TA7343AP

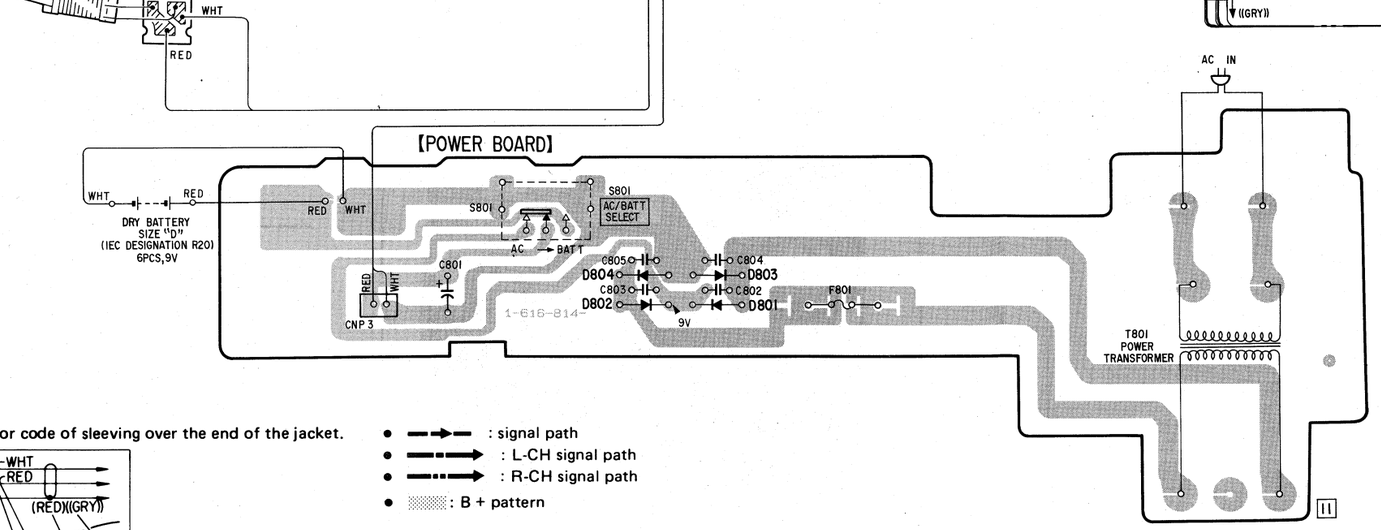


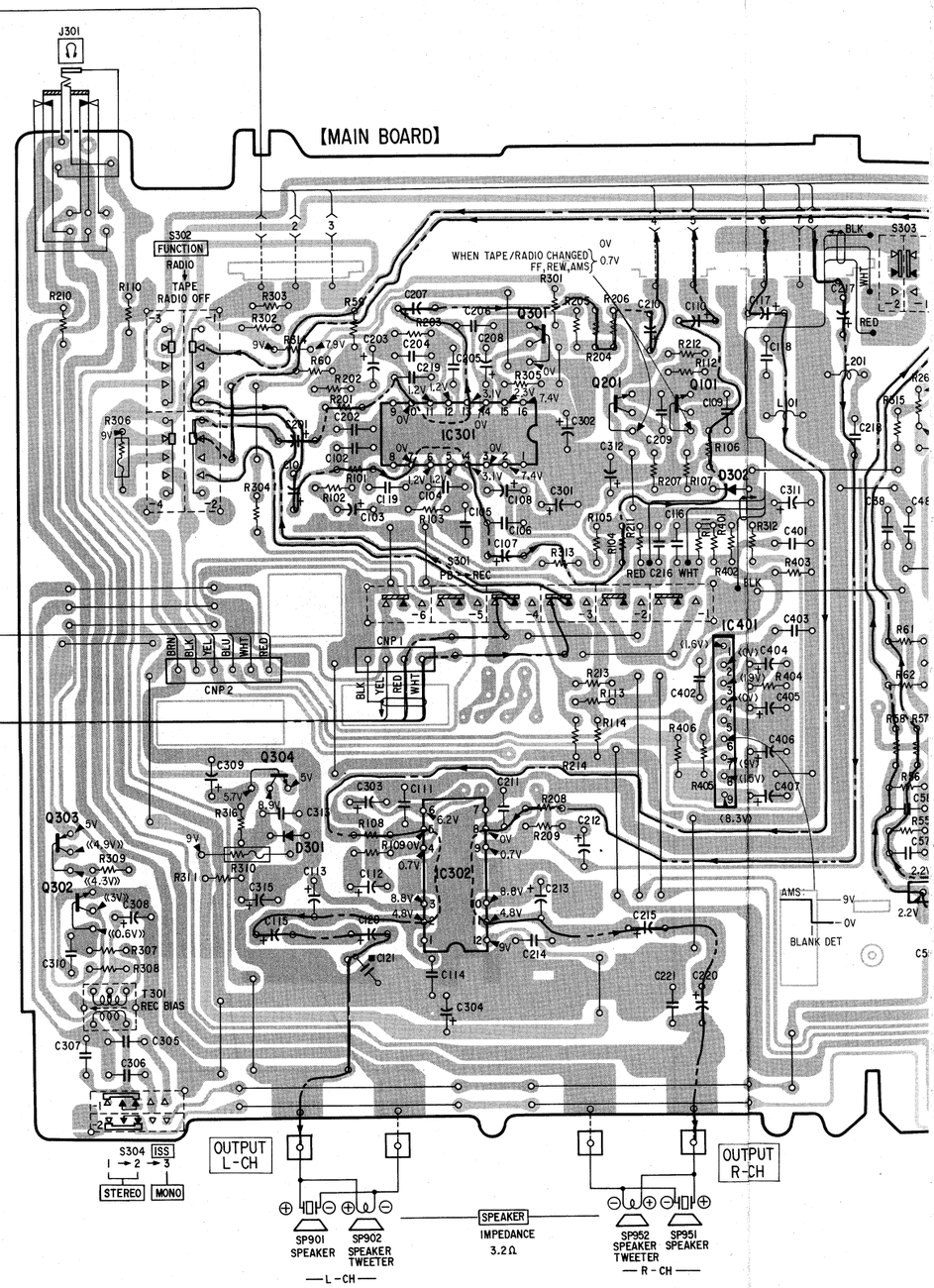
● See page 17 for semiconductor lead layouts.





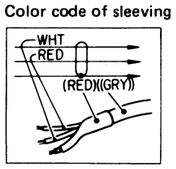






Note:

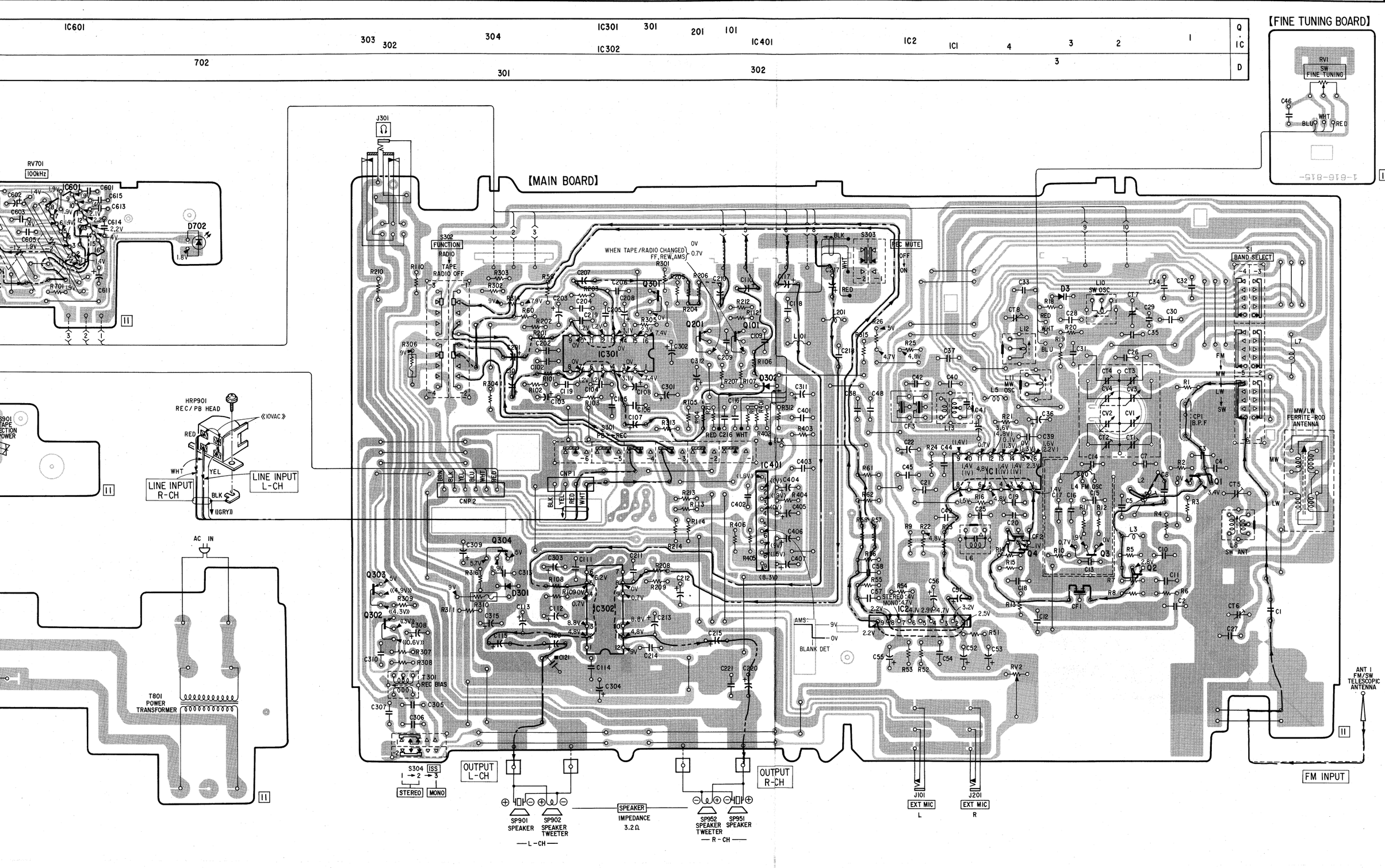
- Color code of sleeving over the end of the jacket.



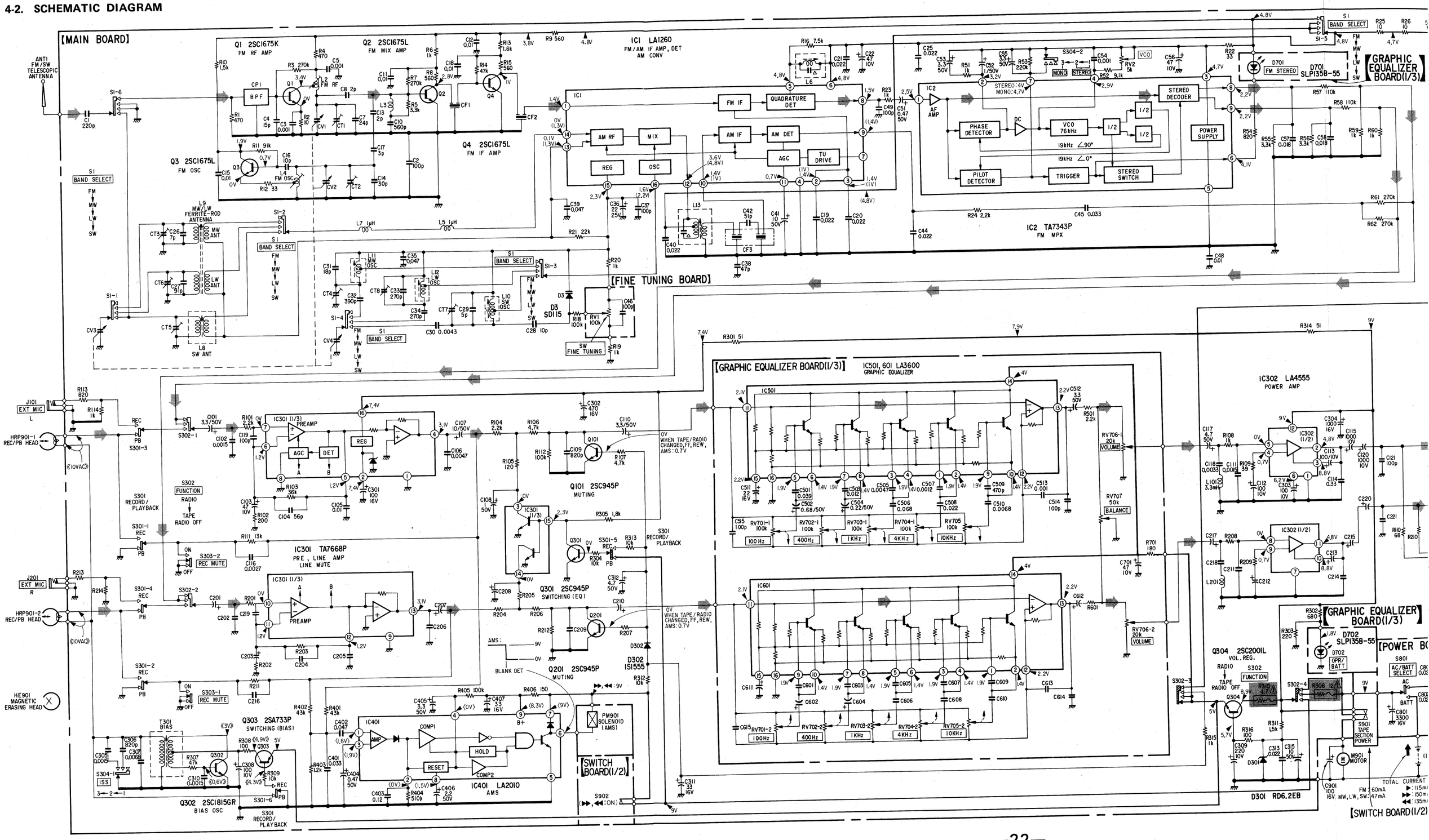
- ○— : parts extracted from the component side.
- ⬚ : indicates side identified with part number.

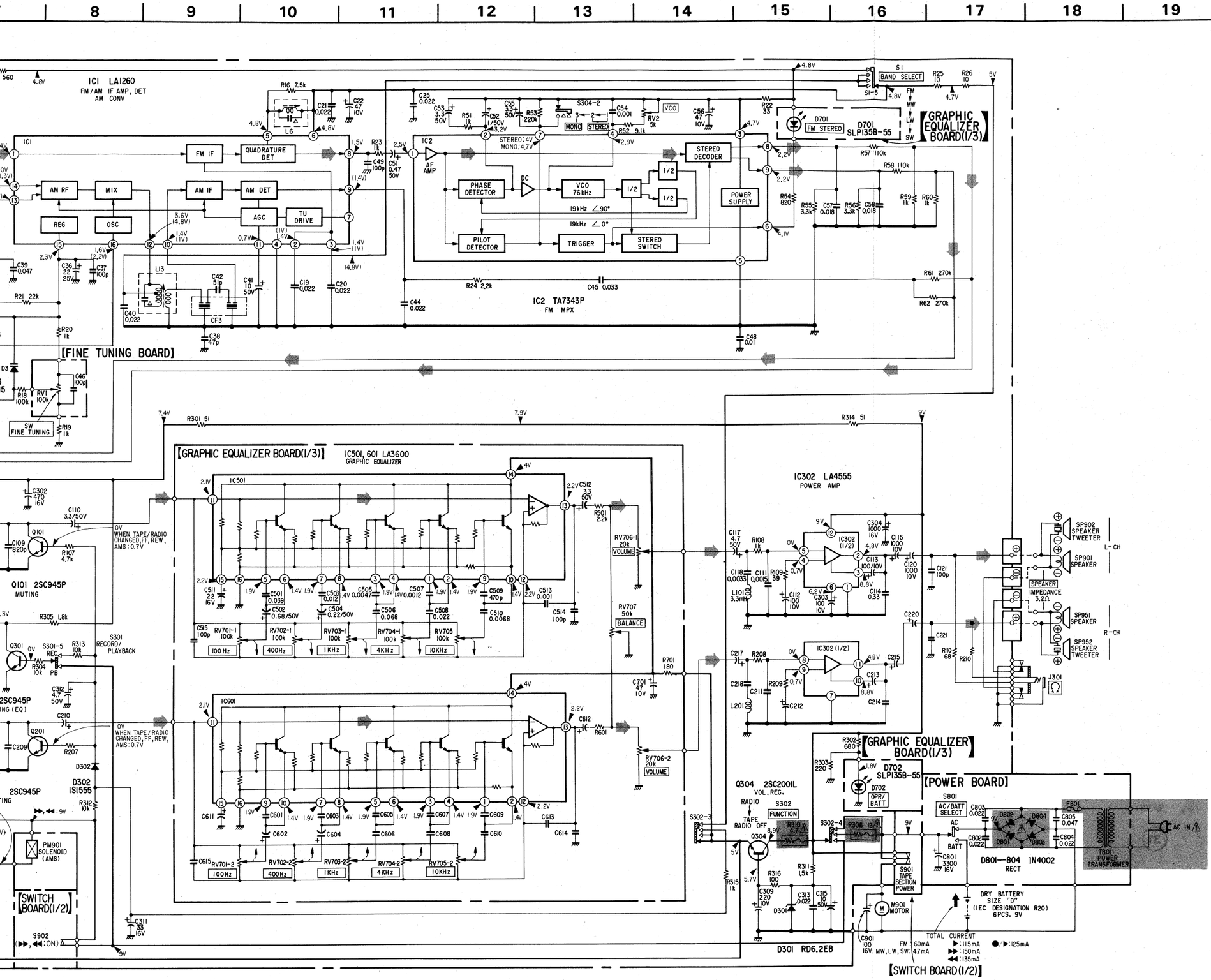
- ▬▶▬ : signal path
- ▬▶▬ : L-CH signal path
- ▬▶▬ : R-CH signal path
- ▒▒▒ : B + pattern

ctor lead layouts.



4-2. SCHEMATIC DIAGRAM





Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- ⇨ : signal path.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

- Components for right channel have same values as for left channel. Reference numbers are coded from 200.
- △ : internal component.
- ⏦ : fusible resistor.
- Switch with sliding contact indicated by hatched lines shows shorting type.

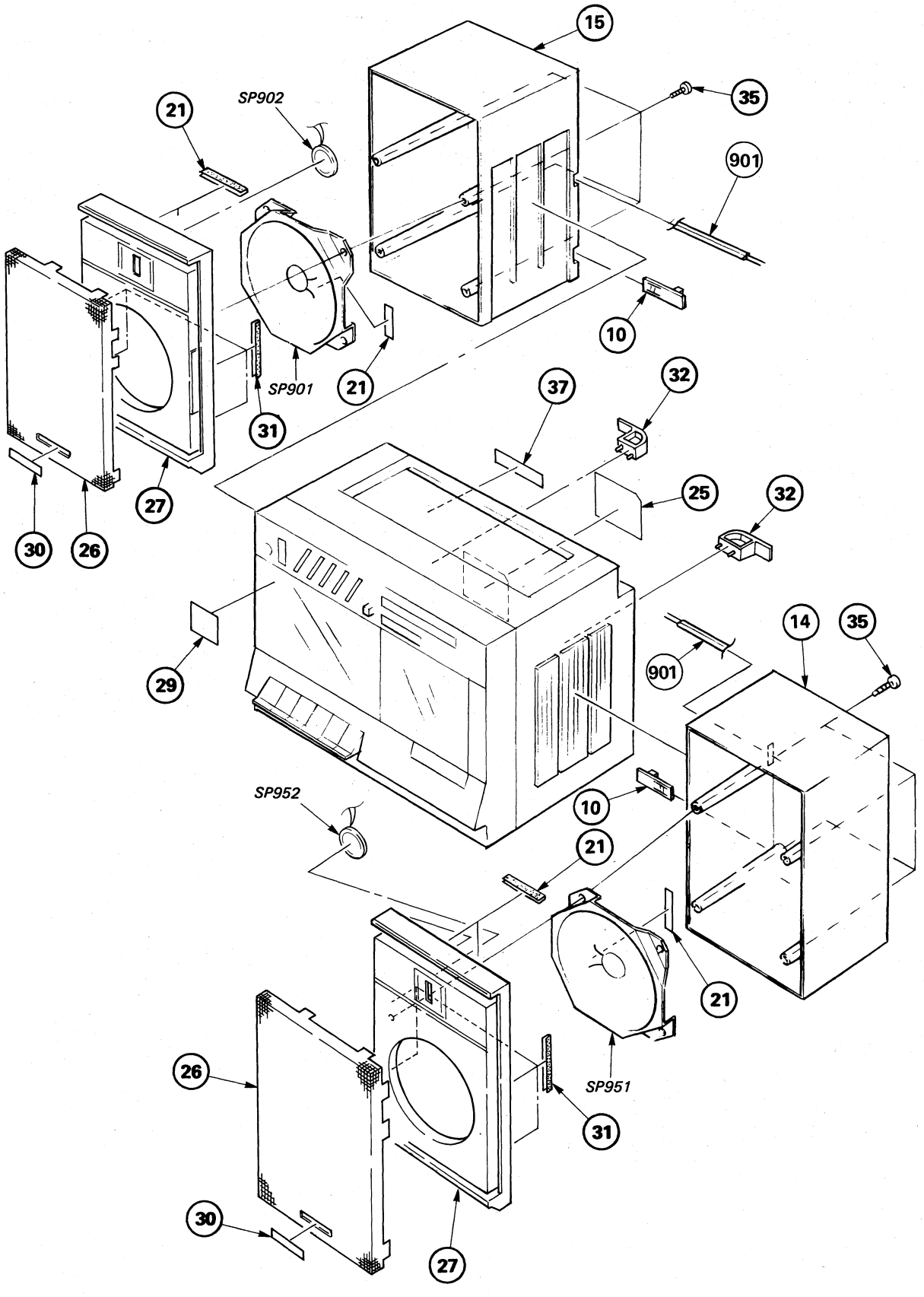
- Switch

Ref. No.	Switch	Position
S1	BAND SELECT	FM
S301	REC/PB	PB
S302	FUNCTION	RADIO
S303	REC MUTE	OFF
S304	ISS/FM MODE	1/STEREO
S801	AC/BATT SELECTOR	AC
S901	TAPE SECTION POWER	OFF
S902	FF, REW	OFF

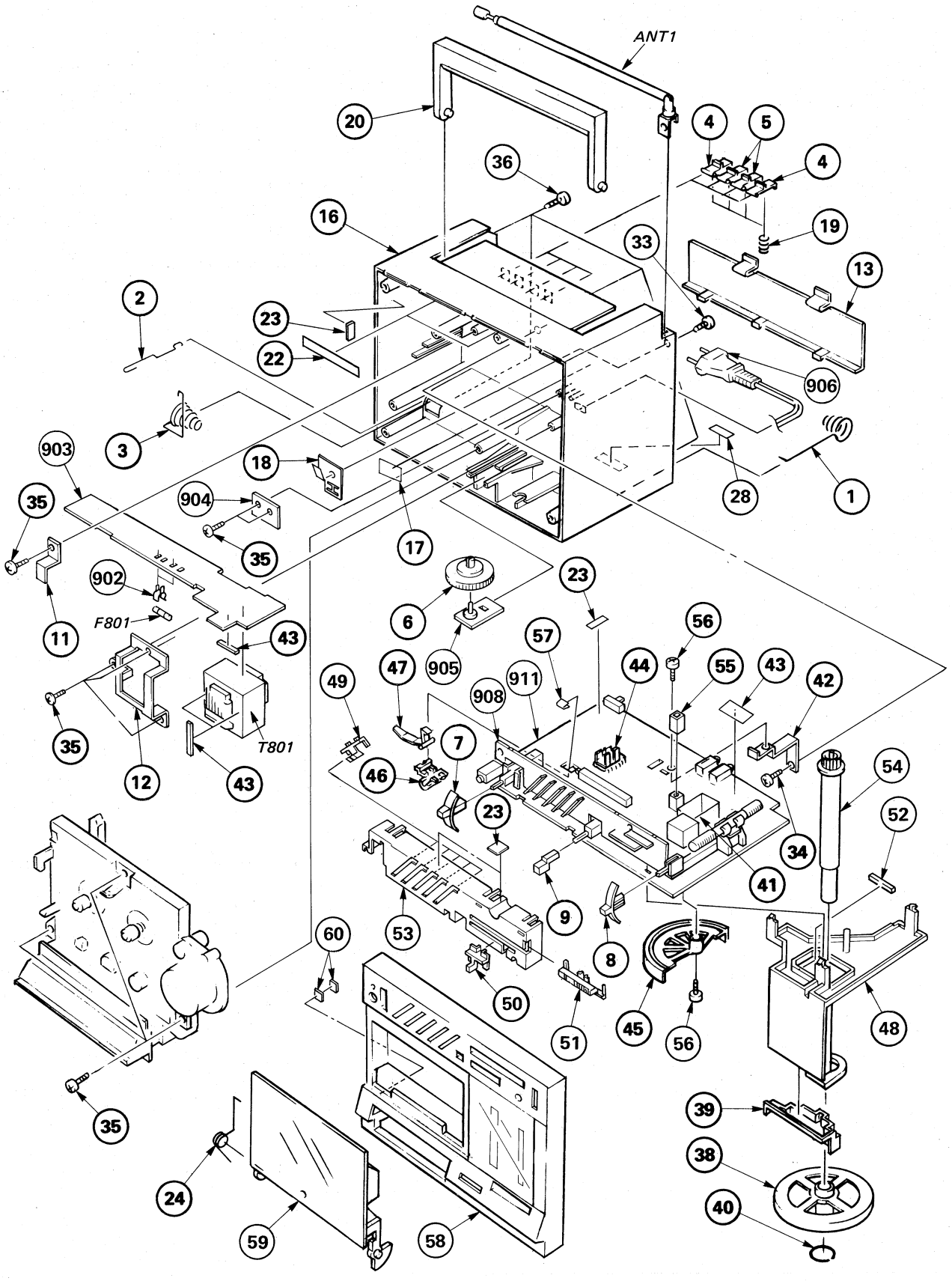
- ▬▬ : B+ bus.
- ▭ : adjustment for repair.
- AC voltage readings in the bias oscillator with a VTVM.
- Total current is measured with no cassette installed.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with a VOM (50kΩ/V).
  no mark: FM
  ( ) : MW
  〈 〉 : AMS
  《 》 : REC
- Voltage variations may be noted due to normal production tolerances.
- ▶ : PLAY ◀◀ : REW
  ▶▶ : FF ■ : STOP

SECTION 5
EXPLODED VIEW AND PARTS LIST

(1)



(2)


ANT1
20
4
5
4
36
16
19
33
13
2
23
22
906
3
18
903
904
28
1
35
17
35
902
F801
6
23
56
11
43
57
905
47
44
55
43
42
49
908
911
7
54
46
12
43
T801
23
52
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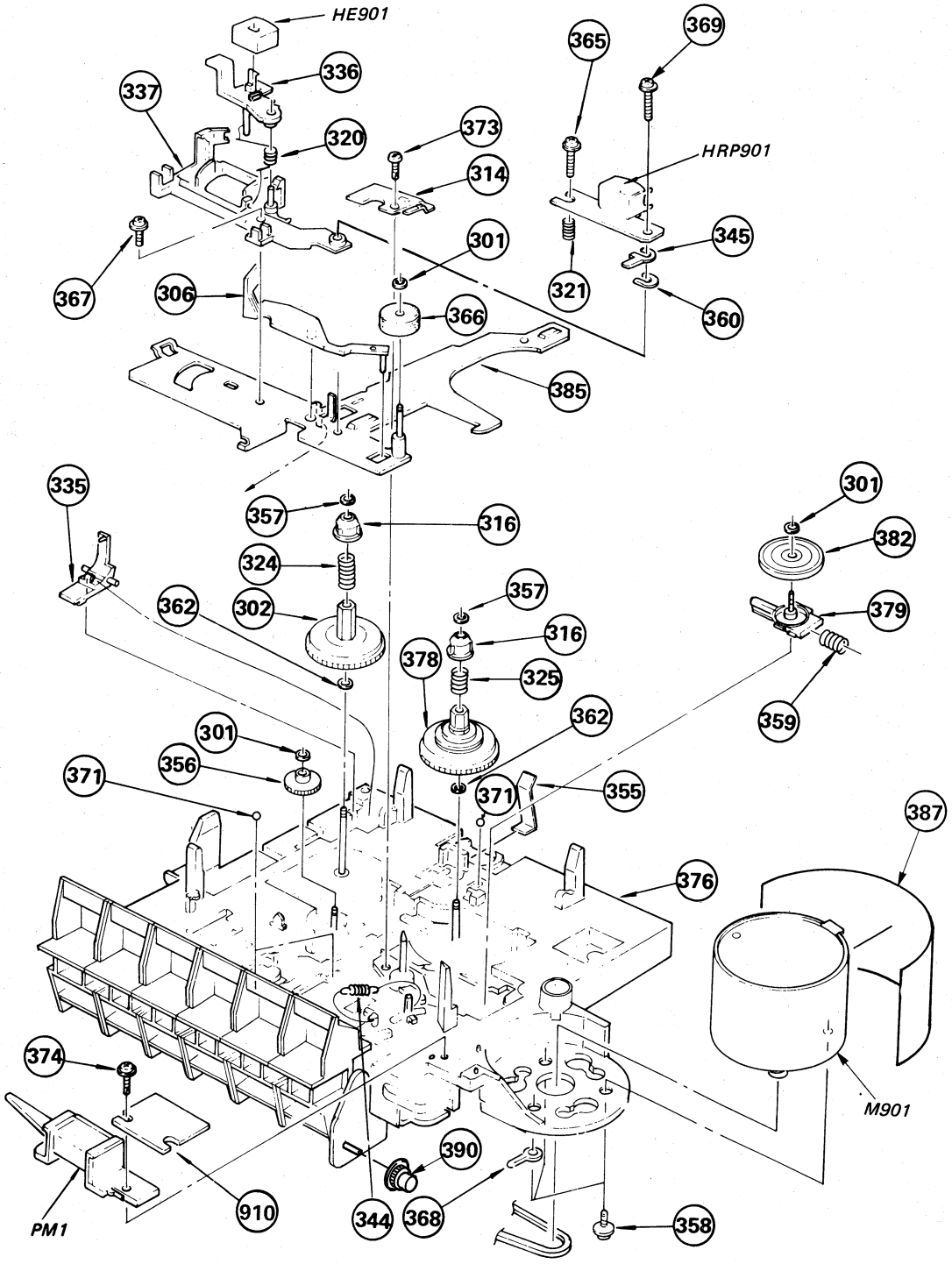
(3)


HE901
336
337
320
373
314
365
369
HRP901
345
301
321
360
367
306
366
385
335
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316
324
362
302
357
316
325
378
362
301
356
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371
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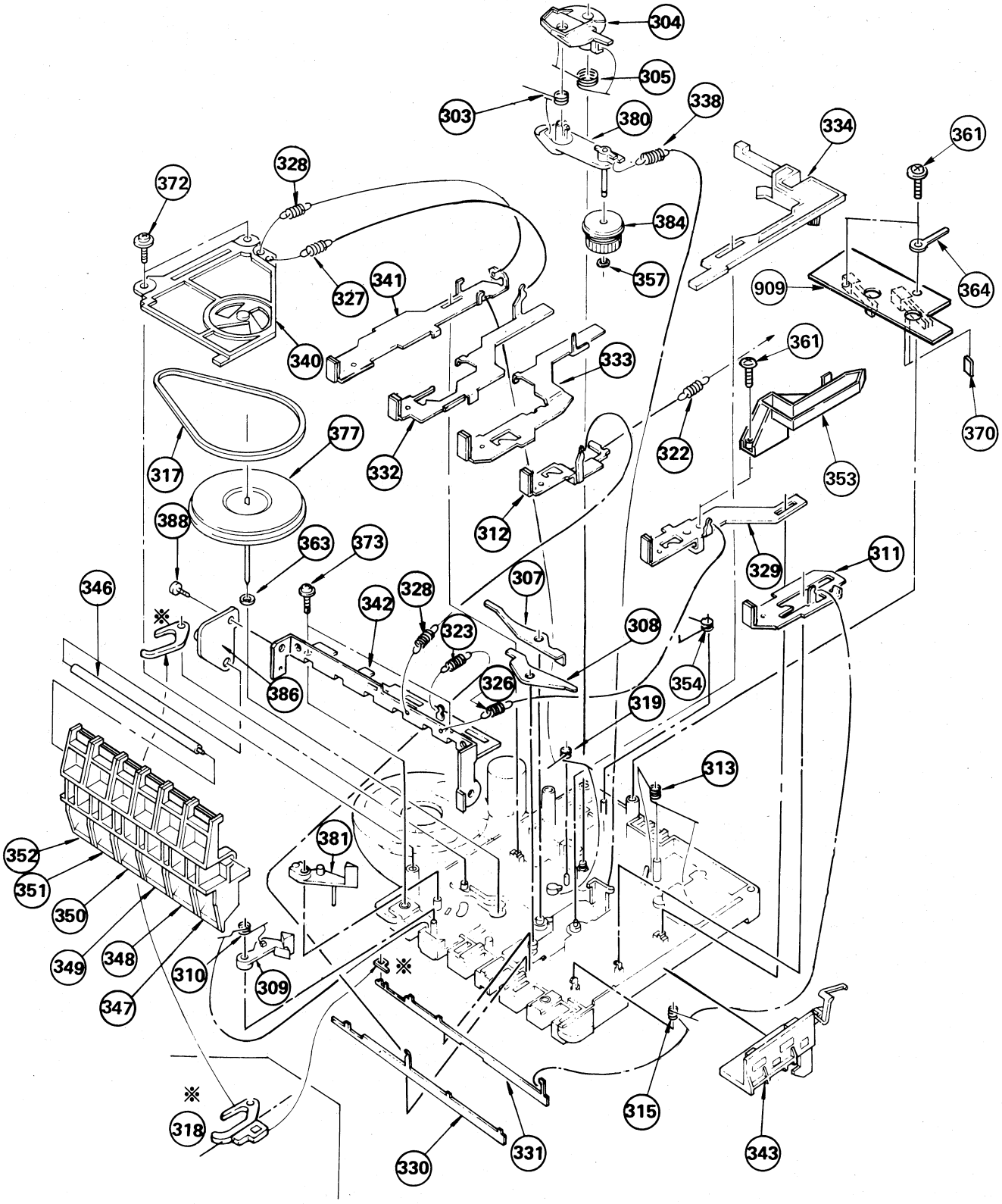
301
382
379
359
387
376
374
910
344
368
390
358
PM1
M901

(4)


304
305
303
380
338
334
361
328
372
384
327
341
357
909
364
340
333
361
377
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317
332
353
388
312
363
373
329
311
346
328
342
307
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308
386
326
354
319
313
381
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331
343

NOTE:
The mechanical parts with no reference number in the exploded views are not supplied.

· Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

· The construction parts of an assembled part are indicated with a collation number in the remark column.

GENERAL SECTION

No.	Part No.	Description
1	3-319-584-01	TERMINAL, BATTERY
2	3-319-585-01	TERMINAL, PLUS
3	3-319-586-01	TERMINAL, MINUS
4	3-319-588-01	RETAINER, LEAD, SPK
5	3-319-588-11	RETAINER, LEAD, SPK
6	3-319-591-01	(BLACK)....KNOB, FINE TUNE
	3-319-591-11	(SILVER)...KNOB, FINE TUNE
7	3-319-593-01	KNOB, FUNCTION
8	3-319-594-01	KNOB, BAND
9	3-319-595-11	KNOB, REC MUTE
10	3-319-598-01	CLAW, LOCK, SPK
11	*3-319-599-01	BRACKET, POWER PC BOARD
12	*3-322-313-01	BRACKET, TRANSFORMER
13	3-322-314-01	(SILVER)...LID, BATTERY CASE
	3-322-314-21	(BLACK)....LID, BATTERY CASE
14	3-322-323-01	(SILVER)...BOX (REAR)(RIGHT), SPK
	3-322-323-21	(BLACK)....BOX (REAR)(RIGHT), SPK
15	3-322-324-01	(SILVER)...BOX (REAR)(LEFT), SPK
	3-322-324-21	(BLACK)....BOX (REAR)(LEFT), SPK
16	3-322-325-41	(SILVER)...CABINET (REAR)
	3-322-325-51	(BLACK)....CABINET (REAR)
17	*3-322-332-01	LABEL, CORD
18	3-322-340-01	TERMINAL, ANTENNA
19	4-879-763-00	SPRING, COMPRESSION
20	3-319-528-01	(BLACK)....HANDLE
	3-322-351-11	(SILVER)...HANDLE
21	3-831-441-11	CUSHION (B)
22	3-831-441-11	CUSHION (D)
23	3-322-381-01	SPACER (D)
24	3-322-388-01	SPRING
25	3-326-216-01	(BLACK)....LABEL, MODEL NUMBER (AE)
	3-326-216-11	(SILVER)...LABEL, MODEL NUMBER (AE)
26	3-327-915-01	GRILLE, SPEAKER
27	3-327-959-01	(SILVER)...BOX (FRONT), SPK
	3-327-959-11	(BLACK)....BOX (FRONT), SPK
28	3-527-213-00	LABEL, SERIAL NUMBER
29	3-703-707-01	STICKER, SONY SYMBOL (21)
30	3-849-510-00	BADGE, SONY
31	3-328-902-01	CUSHION, VIBRATION ABSORBER
32	4-316-003-00	HOLDER, CORD
33	7-682-550-04	SCREW +B 3X12
34	7-685-647-79	SCREW +BVTP 3X10 TYPE2 N-S
35	7-685-648-71	SCREW +BVTP 3X12 TYPE2 N-S
36	7-685-649-14	SCREW +BVTP 3X14 TYPE2 N-S

GENERAL SECTION

No.	Part No.	Description
37	.....	
38	3-319-582-01	(BLACK)....KNOB, TUNING
	3-319-582-11	(SILVER)...KNOB, TUNING
39	3-319-581-01	POINTER
40	3-319-583-01	SPRING
41	*3-319-596-01	PLATE (A), SHIELD
42	*3-319-597-01	BRACKET, PCB
43	*3-322-301-01	CUSHION, RUBBER
44	*3-322-302-01	HEAT SINK
45	3-322-315-01	GEAR, TUNING CAPACITOR
46	3-322-316-01	BRACKET, REC LEVER
47	3-322-317-01	LEVER, REC
48	3-322-321-01	BEARING, TUNING
49	3-322-346-11	KNOB, GEQ
50	3-322-348-01	KNOB, BALANCE
51	3-322-356-01	KNOB, CONTROL
52	9-911-840-XX	SPACER, RUBBER
53	*3-326-217-01	CHASSIS, GEQ
54	3-319-520-01	GEAR, TUNING
55	*3-887-524-00	PLATE, SHIELD
56	7-621-770-67	SCREW +P 2.6X6
57	3-831-441-XX	CUSHION
58	X-3326-205-1	(SILVER)...CABI FRONT S
	X-3326-205-2	(BLACK)....CABI FRONT B
59	X-3326-206-1	CASSETTE HOLDER
60	9-911-844-XX	SPACER, RUBBER

ACCESSORY & PACKING MATERIAL

Part No.	Description
3-319-551-01	CUSHION (UPPER)
3-319-552-01	CUSHION (INNER)
3-319-553-01	CUSHION (LOWER)
3-322-374-01	SHEET, PROTECTION
3-326-222-01	INDIVIDUAL CARTON
3-527-213-00	LABEL, SERIAL NUMBER
3-701-632-00	BAG, POLYETHYLENE
3-703-539-01	INSTRUCTION, FTZ
3-703-707-01	STICKER, SONY SYMBOL (21)
3-703-895-01	LABEL, COLOR
3-703-906-01	LABEL, COLOR
3-760-608-41	MANUAL, INSTRUCTION

MECHANISM SECTION

No.	Part No.	Description
301	3-307-948-01	WASHER, NYLON
302	3-313-305-00	TABLE, REEL, SUPPLY
303	3-313-313-00	SPRING
304	3-313-314-00	LEVER (SI), FR
305	3-313-315-00	SPRING
306	3-313-316-00	PULLEY
307	*3-313-320-00	LEVER, RCP
308	*3-313-321-00	LEVER, PREVENTION, RFR
309	3-313-322-02	LEVER (A), S.OFF
310	3-313-323-00	SPRING
311	*3-313-325-21	LEVER, STOP BUTTON
312	*3-313-326-21	LEVER, FWD BUTTON
313	3-313-327-00	SPRING
314	3-313-328-00	SPRING
315	3-313-331-00	SPRING
316	3-313-333-00	CLAW, REEL
317	3-313-335-00	BELT, CAPSTAN
318	*3-313-337-00	CHIP, JOINT, S.OFF
319	3-313-338-00	SPRING
320	3-313-339-00	SPRING
321	3-313-340-00	SPRING, COMPRESSION
322	3-313-342-00	SPRING, TENSION
323	3-313-343-00	SPRING, TENSION
324	3-324-218-01	SPRING, COMPRESSION
325	3-324-213-01	SPRING, COMPRESSION
326	3-322-529-01	SPRING, TENSION
327	3-313-348-00	SPRING, TENSION
328	3-313-349-00	SPRING, TENSION
329	*3-313-350-21	LEVER, REC BUTTON
330	*3-313-351-00	PLATE (A), LOCK
331	*3-313-352-00	PLATE (B), LOCK
332	*3-313-353-21	LEVER, FF BUTTON
333	*3-313-354-21	LEVER, REW BUTTON
334	3-313-356-00	BRAKE
335	3-313-357-00	CLAW, REC PREVENTION
336	3-313-361-00	ARM, ERASE HEAD
337	3-313-362-00	BRACKET, HEAD
338	3-313-365-00	SPRING, TENSION
339	.....	
340	3-313-379-01	RETAINER (M), FLY
341	*3-313-381-21	LEVER (B), PAUSE BUTTON
342	*3-313-382-01	RETAINER, LEVER
343	3-313-383-01	CLAW (B), EJECT
344	3-313-384-01	SPRING, TENSION
345	3-313-386-11	LUG, SEAM (t=0.2)
	3-313-386-21	LUG, SEAM (t=0.3)
	3-313-386-31	LUG, SEAM (t=0.5)
346	3-319-513-01	SHAFT, MD BUTTON

MECHANISM SECTION

No.	Part No.	Description
347	3-322-310-01	(BLACK)....BUTTON, PAUSE
	3-322-310-11	(SILVER)...BUTTON, PAUSE
348	3-322-308-01	(BLACK)....BUTTON, FF
	3-322-308-11	(SILVER)...BUTTON, FF
349	3-322-309-01	(BLACK)....BUTTON, REW
	3-322-309-11	(SILVER)...BUTTON, REW
350	3-322-307-01	(BLACK)....BUTTON, PLAY
	3-322-307-11	(SILVER)...BUTTON, PLAY
351	3-322-306-01	(BLACK)....BUTTON, REC
	3-322-306-11	(SILVER)...BUTTON, REC
352	3-322-305-01	(BLACK)....BUTTON, S/E
	3-322-305-11	(SILVER)...BUTTON, S/E
353	3-322-311-01	ARM, REC
354	3-313-378-01	SPRING (A)
355	3-313-902-00	SPRING
356	3-558-620-11	GEAR, REWIND
357	3-558-708-01	WASHER, STOPPER
358	7-621-770-87	SCREW +P 2.6X5
359	3-573-464-00	SPRING, COMPRESSION
360	3-578-138-01	SEAM (t=0.1)
	3-578-138-11	SEAM (t=0.2)
	3-578-138-21	SEAM (t=0.3)
361	7-685-134-14	SCREW, TOTSU PTPWH 2.6X8, TYPE2
362	3-701-437-21	WASHER
363	3-313-387-01	WASHER, THRUST (t=0.3)
	3-313-387-11	WASHER, THRUST (t=0.4)
364	3-701-822-00	HOLDER, WIRE
365	3-701-465-00	SCREW, LOCK
366	3-703-597-41	PINCH ROLLER, STANDARD
367	7-621-955-35	SCREW (2MMX5), + PWH
368	7-623-508-01	LUG, 3
369	7-621-772-40	SCREW +B 2X8
370	9-911-844-XX	SPACER, LEAF
371	7-671-112-11	BALL, STEEL
372	7-687-234-11	SCREW (+ PTPWH)(2.6X8)
373	7-685-133-14	SCREW +P 2.6X6 TYPE2 SLIT
374	7-685-105-14	SCREW (2X8), + PTPWH
376	A-3102-059-A	CHASSIS ASSY, MECHANICAL
377	A-3109-024-A	FLYWHEEL ASSY
378	A-3130-031-A	TABLE ASSY, REEL, TAKE-UP
379	X-3313-301-0	BRACKET ASSY, T PULLEY
380	X-3313-304-0	ARM ASSY, REW
381	X-3313-306-0	LEVER (B) ASSY, SHUT-OFF
382	X-3313-307-0	PULLEY ASSY, FWD
383	.....	
384	X-3313-310-1	IDLER ASSY, FR
385	X-3313-311-1	CHASSIS ASSY
386	3-322-304-01	BEARING, SE
387	*3-314-618-00	PLATE, SHIELD, MOTOR
388	7-682-545-09	SCREW +B 3X4
389	.....	
390	3-319-592-01	GEAR, SE

NOTE:
- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA...: μA..., UPA...: μPA..., UPC...: μPC, UPD...: μPD...

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
901	1-557-463-11	CORD, SPEAKER			
902	*1-533-131-00	HOLDER, FUSE			
903	*1-616-814-11	PC BOARD, POWER			
904	*1-616-816-11	PC BOARD, STOPPER			
905	*1-616-815-11	PC BOARD, FINE TUN			
906	⚠1-551-958-00	CORD, POWER			
908	*A-3279-511-A	MOUNTED PCB, GEQ			
909	*1-616-817-11	PC BOARD, SWITCH			
910	*1-602-735-00	PC BOARD			
911	*A-3260-341-A	MOUNTED PCB, MAIN			
ANT1	1-501-312-11	ANTENNA, TELESCOPIC			
C1	1-102-110-00	CERAMIC	220PF	10%	50V
C2	1-102-973-00	CERAMIC	100PF	10%	50V
C3	1-101-001-00	CERAMIC	0.001MF		50V
C4	1-102-951-00	CERAMIC	15PF	5%	50V
C5	1-101-001-00	CERAMIC	0.001MF		50V
C7	1-102-960-00	CERAMIC	24PF	5%	50V
C8	1-102-935-00	CERAMIC	2PF	0.25PF	50V
C10	1-102-115-00	CERAMIC	560PF	10%	50V
C11	1-101-004-00	CERAMIC	0.01MF		50V
C12	1-101-004-00	CERAMIC	0.01MF		50V
C13	1-102-502-00	CERAMIC	2PF	0.25PF	50V
C14	1-102-962-00	CERAMIC	30PF	5%	50V
C15	1-101-004-00	CERAMIC	0.01MF		50V
C16	1-102-508-00	CERAMIC	10PF	0.5PF	50V
C17	1-102-503-00	CERAMIC	3PF	0.25PF	50V
C18	1-101-004-00	CERAMIC	0.01MF		50V
C19	1-101-005-00	CERAMIC	0.022MF		50V
C20	1-101-005-00	CERAMIC	0.022MF		50V
C21	1-101-005-00	CERAMIC	0.022MF		50V
C22	1-123-306-00	ELECT	47MF	20%	10V
C25	1-101-005-00	CERAMIC	0.022MF		50V
C26	1-102-944-00	CERAMIC	7PF	0.5PF	50V
C27	1-102-972-00	CERAMIC	91PF	5%	50V
C28	1-102-508-00	CERAMIC	10PF	0.5PF	50V
C29	1-102-281-00	CERAMIC	5PF	0.5PF	50V
C30	1-103-740-00	POLYSTYRENE	0.0043MF	5%	50V
C31	1-102-893-00	CERAMIC	18PF	5%	50V
C32	1-104-067-00	POLYSTYRENE	390PF	5%	50V
C33	1-103-711-00	POLYSTYRENE	270PF	5%	50V
C34	1-103-711-00	POLYSTYRENE	270PF	5%	50V
C35	1-101-006-21	CERAMIC	0.047MF		50V
C36	1-123-330-00	ELECT	22MF	20%	25V
C37	1-102-973-00	CERAMIC	100PF	10%	50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C38	1-101-880-00	CERAMIC	47PF	10%	50V
C39	1-101-006-21	CERAMIC	0.047MF		50V
C40	1-101-005-00	CERAMIC	0.022MF		50V
C41	1-123-356-00	ELECT	10MF	20%	50V
C42	1-101-882-00	CERAMIC	51PF	5%	50V
C44	1-161-055-00	CERAMIC	0.022MF	10%	25V
C45	1-161-057-00	CERAMIC	0.033MF	10%	25V
C46	1-102-106-00	CERAMIC	100PF	10%	50V
C48	1-101-004-00	CERAMIC	0.01MF		50V
C49	1-102-973-00	CERAMIC	100PF	10%	50V
C51	1-123-379-00	ELECT	0.47MF	20%	50V
C52	1-123-380-00	ELECT	1MF	20%	50V
C53	1-123-382-00	ELECT	3.3MF	20%	50V
C54	1-104-077-00	POLYSTYRENE	0.001MF	5%	50V
C55	1-123-382-00	ELECT	3.3MF	20%	50V
C56	1-123-306-00	ELECT	47MF	20%	10V
C57	1-161-054-00	CERAMIC	0.018MF	10%	25V
C58	1-161-054-00	CERAMIC	0.018MF	10%	25V
C101	1-123-382-00	ELECT	3.3MF	20%	50V
C102	1-102-119-00	CERAMIC	0.0015MF	10%	50V
C103	1-123-306-00	ELECT	47MF	20%	10V
C104	1-101-884-00	CERAMIC	56PF	10%	50V
C105	1-161-013-00	CERAMIC	0.01MF	10%	25V
C106	1-161-047-00	CERAMIC	0.0047MF	10%	25V
C107	1-123-356-00	ELECT	10MF	20%	50V
C108	1-123-380-00	ELECT	1MF	20%	50V
C109	1-102-117-00	CERAMIC	820PF	10%	50V
C110	1-123-382-00	ELECT	3.3MF	20%	50V
C111	1-102-119-00	CERAMIC	0.0015MF	10%	50V
C112	1-123-307-00	ELECT	100MF	20%	10V
C113	1-123-307-00	ELECT	100MF	20%	10V
C114	1-136-171-00	FILM	0.33MF	5%	50V
C115	1-123-311-00	ELECT	1000MF	20%	10V
C116	1-102-122-00	CERAMIC	0.0027MF	10%	50V
C117	1-123-369-00	ELECT	4.7MF	20%	50V
C118	1-110-201-00	MYLAR	0.0033MF	5%	50V
C119	1-102-973-00	CERAMIC	100PF	10%	50V
C120	1-123-311-00	ELECT	1000MF	20%	10V
C121	1-102-973-00	CERAMIC	100PF	10%	50V
C301	1-123-333-00	ELECT	100MF	20%	16V
C302	1-123-323-00	ELECT	470MF	20%	16V
C303	1-123-307-00	ELECT	100MF	20%	10V
C304	1-123-324-00	ELECT	1000MF	20%	16V
C305	1-102-119-00	CERAMIC	0.0015MF	10%	50V
C306	1-102-117-00	CERAMIC	820PF	10%	50V

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
C307	1-106-192-00	MYLAR	0.0068MF	5%	50V
C308	1-123-307-00	ELECT	100MF	20%	10V
C309	1-123-308-00	ELECT	220MF	20%	10V
C310	1-102-119-00	CERAMIC	0.0015MF	10%	50V
C311	1-123-318-00	ELECT	33MF	20%	16V
C312	1-123-369-00	ELECT	4.7MF	20%	50V
C313	1-101-005-00	CERAMIC	0.022MF		50V
C315	1-123-356-00	ELECT	10MF	20%	50V
C401	1-161-057-00	CERAMIC	0.033MF	10%	25V
C402	1-161-059-00	CERAMIC	0.047MF	10%	25V
C403	1-136-166-00	FILM	0.12MF	5%	50V
C404	1-123-379-00	ELECT	0.47MF	20%	50V
C405	1-123-382-00	ELECT	3.3MF	20%	50V
C406	1-123-381-00	ELECT	2.2MF	20%	50V
C407	1-123-318-00	ELECT	33MF	20%	16V
C501	1-161-058-00	CERAMIC	0.039MF	10%	25V
C502	1-123-902-00	ELECT	0.68MF	20%	50V
C503	1-161-052-00	CERAMIC	0.012MF	10%	25V
C504	1-123-608-00	ELECT	0.22MF	20%	50V
C505	1-161-047-00	CERAMIC	0.0047MF	10%	25V
C506	1-161-023-00	CERAMIC	0.068MF	10%	25V
C507	1-161-040-00	CERAMIC	0.0012MF	10%	25V
C508	1-161-055-00	CERAMIC	0.022MF	10%	25V
C509	1-102-114-00	CERAMIC	470PF	10%	50V
C510	1-161-049-00	CERAMIC	0.0068MF	10%	25V
C511	1-123-330-00	ELECT	22MF	20%	16V
C512	1-123-382-00	ELECT	3.3MF	20%	50V
C513	1-161-039-00	CERAMIC	0.001MF	10%	25V
C514	1-102-106-00	CERAMIC	100PF	10%	50V
C515	1-102-106-00	CERAMIC	100PF	10%	50V
C701	1-123-306-00	ELECT	47MF	20%	10V
C801	1-123-326-00	ELECT	3300MF	20%	16V
C802	1-101-005-00	CERAMIC	0.022MF		50V
C803	1-101-005-00	CERAMIC	0.022MF		50V
C804	1-101-005-00	CERAMIC	0.022MF		50V
C805	1-101-006-21	CERAMIC	0.047MF		50V
C901	1-123-333-00	CAP, ELECT 100MF			
CF1	1-527-808-00	FILTER, CERAMIC			
CF2	1-527-808-00	FILTER, CERAMIC			
CF3	1-527-865-00	FILTER, CERAMIC			
CNJ2	*1-557-591-11	SOCKET ASSY, CONNECTOR 6P			
CNJ3	*1-557-589-11	SOCKET ASSY, CONNECTOR 2P			
CNP1	*1-564-816-11	PLUG, CONNECTOR (2.54MM) 4P			
CNP2	*1-564-779-11	PLUG, CONNECTOR (2.5MM) 6P			
CP1	1-231-720-00	FILTER, BANDPASS			
CT5	1-141-290-11	CAP, FILM TRIMMER			
CT6	1-141-245-00	TRIMMER, CERAMIC			
CT7	1-141-290-11	CAP, FILM TRIMMER			
CT8	1-141-245-00	TRIMMER, CERAMIC			
CV1	1-151-387-00	CAP, TUNING, POLYETHYLENE			
D3	8-719-713-93	DIODE 1S2139C			
D301	8-719-162-07	DIODE RD6.2E			
D302	8-719-815-55	DIODE 1S1555			
D701	8-719-903-39	DIODE SLP135B-55 (FM STEREO)			
D702	8-719-903-39	DIODE SLP135B-55 (OPR/BATT)			
D801 ⚠	8-719-200-02	DIODE 10E2			

ELECTRICAL PARTS

Ref.No.	Part No.	Description			
D802 ⚠	8-719-200-02	DIODE 10E2			
D803 ⚠	8-719-200-02	DIODE 10E2			
D804 ⚠	8-719-200-02	DIODE 10E2			
F801 ⚠	1-532-285-00	FUSE, TIME-LAG			
HE901	8-658-096-02	HEAD, ERASE EBF5-36			
HRP901	8-825-510-21	HEAD PP271-3602			
IC1	8-759-801-24	IC LA1260S			
IC2	8-759-203-87	IC TA7343P			
IC301	8-759-202-62	IC TA7668AP			
IC302	1-806-909-11	IC LA4555			
IC401	8-759-800-71	IC LA2010			
IC501	8-759-801-23	IC LA3600			
IC601	8-759-801-23	IC LA3600			
J101	1-507-578-00	JACK (EXT MIC L)			
J201	1-507-578-00	JACK (EXT MIC R)			
J301	1-507-948-11	JACK (EARPHONE)			
L2	1-426-202-11	COIL, FM RF			
L3	*1-409-293-00	COIL, AIR CORE			
L4	*1-425-873-00	COIL			
L5	1-408-551-00	MICRO INDUCTOR 1UH			
L6	1-404-249-00	COIL, FM DETECTOR			
L7	1-408-551-00	MICRO INDUCTOR 1UH			
L8	1-402-103-11	COIL, ANT (SW)			
L9	1-402-107-11	ANTENNA, FERRITE-ROD (LW/MW)			
L10	1-406-105-11	COIL, OSC (SW)			
L11	1-406-059-00	COIL, OSC			
L12	1-406-126-11	COIL, LW OSC			
L13	1-404-552-11	TRANSFORMER, IF			
L101	1-409-389-11	COIL, TRAP			
L201	1-409-389-11	COIL, TRAP			
M901	A-3133-230-A	MOTOR ASSY			
PM1	1-454-355-00	SOLENOID, PLUNGER			
Q1	8-729-167-42	TRANSISTOR 2SC1674			
Q2	8-729-672-42	TRANSISTOR 2SC710-13			
Q3	8-729-672-42	TRANSISTOR 2SC710-13			
Q4	8-729-672-42	TRANSISTOR 2SC710-13			
Q101	8-729-194-57	TRANSISTOR 2SC945-P			
Q201	8-729-194-57	TRANSISTOR 2SC945-P			
Q301	8-729-194-57	TRANSISTOR 2SC945-P			
Q302	8-729-281-53	TRANSISTOR 2SC1815-GR			
Q303	8-729-173-37	TRANSISTOR 2SA733-P			
Q304	8-729-100-13	TRANSISTOR 2SC2001			
R1	1-247-823-00	CARBON	470	5%	1/6W
R2	1-247-783-00	CARBON	10	5%	1/6W
R3	1-247-889-00	CARBON	270K	5%	1/6W
R4	1-247-823-00	CARBON	470	5%	1/6W
R5	1-247-843-00	CARBON	3.3K	5%	1/6W
R6	1-247-831-00	CARBON	1K	5%	1/6W
R7	1-247-889-00	CARBON	270K	5%	1/6W
R8	1-247-825-00	CARBON	560	5%	1/6W
R9	1-247-825-00	CARBON	560	5%	1/6W
R10	1-249-419-11	CARBON	1.5K	5%	1/6W
R11	1-247-878-00	CARBON	91K	5%	1/6W
R12	1-247-795-00	CARBON	33	5%	1/6W

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

ELECTRICAL PARTS

Ref.No.	Part No.	Description				
R13	1-247-837-00	CARBON	1.8K	5%	1/6W	
R14	1-249-437-11	CARBON	47K	5%	1/6W	
R15	1-247-825-00	CARBON	560	5%	1/6W	
R16	1-247-852-00	CARBON	7.5K	5%	1/6W	
R18	1-247-879-00	CARBON	100K	5%	1/6W	
R19	1-247-831-00	CARBON	1K	5%	1/6W	
R20	1-247-831-00	CARBON	1K	5%	1/6W	
R21	1-247-863-00	CARBON	22K	5%	1/6W	
R22	1-247-795-00	CARBON	33	5%	1/6W	
R23	1-247-831-00	CARBON	1K	5%	1/6W	
R24	1-249-421-11	CARBON	2.2K	5%	1/6W	
R25	1-247-783-00	CARBON	10	5%	1/6W	
R26	1-247-688-11	CARBON	10	5%	1/4W	
R51	1-247-831-00	CARBON	1K	5%	1/6W	
R52	1-247-854-00	CARBON	9.1K	5%	1/6W	
R53	1-247-887-00	CARBON	220K	5%	1/6W	
R54	1-247-829-00	CARBON	820	5%	1/6W	
R55	1-247-843-00	CARBON	3.3K	5%	1/6W	
R56	1-247-843-00	CARBON	3.3K	5%	1/6W	
R57	1-247-880-00	CARBON	110K	5%	1/6W	
R58	1-247-880-00	CARBON	110K	5%	1/6W	
R59	1-247-831-00	CARBON	1K	5%	1/6W	
R60	1-247-831-00	CARBON	1K	5%	1/6W	
R61	1-247-889-00	CARBON	270K	5%	1/6W	
R62	1-247-889-00	CARBON	270K	5%	1/6W	
R101	1-249-421-11	CARBON	2.2K	5%	1/6W	
R102	1-247-814-00	CARBON	200	5%	1/6W	
R103	1-247-868-00	CARBON	36K	5%	1/6W	
R104	1-249-421-11	CARBON	2.2K	5%	1/6W	
R105	1-247-809-00	CARBON	120	5%	1/6W	
R106	1-247-847-00	CARBON	4.7K	5%	1/6W	
R107	1-247-847-00	CARBON	4.7K	5%	1/6W	
R108	1-247-831-00	CARBON	1K	5%	1/6W	
R109	1-247-797-00	CARBON	39	5%	1/6W	
R110	1-247-803-00	CARBON	68	5%	1/6W	
R111	1-247-858-00	CARBON	13K	5%	1/6W	
R112	1-247-879-00	CARBON	100K	5%	1/6W	
R113	1-247-829-00	CARBON	820	5%	1/6W	
R114	1-247-831-00	CARBON	1K	5%	1/6W	
R301	1-247-100-00	CARBON	51	5%	1/4W	
R302	1-247-827-00	CARBON	680	5%	1/6W	
R303	1-247-815-00	CARBON	220	5%	1/6W	
R304	1-249-429-11	CARBON	10K	5%	1/6W	
R305	1-247-837-00	CARBON	1.8K	5%	1/6W	
R306 ⚠	1-217-388-00	FUSIBLE	12	5%	1/4W	F

ELECTRICAL PARTS

Ref.No.	Part No.	Description				
R307	1-249-437-11	CARBON	47K	5%	1/6W	
R308	1-247-807-00	CARBON	100	5%	1/6W	
R309	1-249-429-11	CARBON	10K	5%	1/6W	
R310 ⚠	1-217-383-00	FUSIBLE	4.7	5%	1/4W	F
R311	1-249-419-11	CARBON	1.5K	5%	1/6W	
R312	1-249-429-11	CARBON	10K	5%	1/6W	
R313	1-249-429-11	CARBON	10K	5%	1/6W	
R314	1-247-100-00	CARBON	51	5%	1/4W	
R315	1-247-831-00	CARBON	1K	5%	1/6W	
R316	1-247-807-00	CARBON	100	5%	1/6W	
R401	1-247-870-00	CARBON	43K	5%	1/6W	
R402	1-247-870-00	CARBON	43K	5%	1/6W	
R403	1-247-833-00	CARBON	1.2K	5%	1/6W	
R404	1-247-896-00	CARBON	510K	5%	1/6W	
R405	1-247-879-00	CARBON	100K	5%	1/6W	
R406	1-247-811-00	CARBON	150	5%	1/6W	
R501	1-249-421-11	CARBON	2.2K	5%	1/6W	
R701	1-247-813-00	CARBON	180	5%	1/6W	
RV1	1-230-477-11	RES, VAR, CARBON 100K (SW FINE TUNING)				
RV2	1-230-482-11	RES, ADJ, CARBON 5K				
RV701	1-230-672-11	RES, VAR, SLIDE 100K/100K (100Hz)				
RV702	1-230-672-11	RES, VAR, SLIDE 100K/100K (400Hz)				
RV703	1-230-672-11	RES, VAR, SLIDE 100K/100K (1kHz)				
RV704	1-230-672-11	RES, VAR, SLIDE 100K/100K (4kHz)				
RV705	1-230-672-11	RES, VAR, SLIDE 100K/100K (10kHz)				
RV706	1-230-491-11	RES, VAR, SLIDE 20K/20K (VOLUME)				
RV707	1-230-492-11	RES, VAR, SLIDE 50K (BALANCE)				
S1	1-554-916-11	SWITCH, LEVER SLIDE (BAND SELECT)				
S301	1-554-083-31	SWITCH, SLIDE (REC/PB)				
S302	1-554-917-11	SWITCH, LEVER SLIDE (FUNCTION)				
S303	1-554-491-00	SWITCH, PUSH (1 KEY)(REC MUTE)				
S304	1-554-061-00	SWITCH, SLIDE (ISS)				
S801	1-552-844-11	SWITCH, SLIDE (AC/BATT SELECT)				
S901	1-554-495-00	SWITCH, LEAF (TAPE SECTION POWER)				
S902	1-554-496-00	SWITCH, LEAF (FF,REW:ON)				
SP901	1-503-550-11	SPEAKER				
SP902	1-529-030-21	BUZZER				
SP951	1-503-550-11	SPEAKER				
SP952	1-529-030-21	BUZZER				
T301	1-433-268-00	TRANSFORMER, BIAS OSCILLATOR				
T801 ⚠	1-447-851-11	TRANSFORMER, POWER				

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

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